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ABSTRACT

One of 10 reports in a longitudinal study of Project Head Start submitted by NTS Research Corporation to the Administration for Children, Youth and Families, this document presents the individual testing battery used for the fall 1979 cohort. The first chapter identifies the skill areas to be tested in an analysis of Project Head Start's effectiveness in preparing children for school. Among these skill areas were appropriate developmental skills and readiness to acquire basic educational skills (such as reading, writing, and mathematics, as well as language, science, problem solving, and positive attitudes toward learning). The second chapter details the procedure for screening tests, including the criteria whereby tests were to be evaluated. A pilot test battery is presented in the third chapter: the tests in the pilot battery measured such areas as block building, verbal fluency, basic information, arm coordination, reading readiness, pictorial memory, and conceptual grouping. Also assessed by the pilot battery were verbal memory, leg coordination, number readiness, opposite analogies, "draw-a-child," and interpersonal problem solving. In the fourth chapter the test battery adopted for use with the fall 1979 cohort is presented: skills measured included many of the same skills already mentioned for the pilot test battery. Appendices include two papers about measuring preschool skills, a test review summary form, and the test batteries. (Author/DB)

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NATIONAL EVALUATION OF HEAD START EDUCATIONAL SERVICES AND BASIC EDUCATIONAL SKILLS INITIATIVE:

Project Report 3: Child Outcomes: Individual Testing Battery for the Fall 1979 Cohort

February 18, 1980

Contract No. HEW 105-78-1306

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Project Report 1: Design and Sampling

Project Report 2: Panel Recommendations

Project Report 3: Child Outcomes: Individual Testing Battery for the Fall 1979 Cohort

Project Report 4: National Evaluation of Head Start Educational Services and Basic Educational Skills Initiative: Individual Testing Battery for Fall 1979

Project Report 5: OMB Submission Package

Project Report 6: Description and Analysis of Program Data: Basic Educational Skills Initiative, 1979

Project Report 7: Description of Program Data: Head Start Sample Programs, 1979

Project Report 8: Generalizability Studies of the Child Test Battery and of the Alternative Classroom Environment Scales

Project Report 9: Procedures in the Implementation of the Study Design, 1978-79

Project Report 10: Phase II Summary Report: Fall 1979 Child Data Collection

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INTRODUCTION TO EVALUATION

Each year Head Start programs serve approximately 385,000 children and families, at a cost of over $700 million dollars--the largest annual federal expenditure for the education of preschool children. NTS Research Corporation is currently conducting the beginning phases of the largest and potentially most long-term evaluation of Head Start programs yet planned. The overall purpose of this evaluation is to assess the impact, on the children and parents being served, of: (1) the educational services component of Head Start programs nationwide, and (2) a new demonstration program within Head Start, Basic Educational Skills. The evaluation deals with a total of 65 Head Start programs and their families, potentially for 10 to 12 years.

Head Start is a nationwide program for preschool children of low-income families and is supported by the United States Department of Health and Human Services. Since its inception in 1965, the goal of Head Start has been to improve each child's ability to deal both with the present environment in which he/she lives and with later responsibilities in school and life. Head Start provides services not only in the educational area, but also in the areas of health, nutrition, parent involvement and social services. While this is an evaluation of the educational component, the study also gathers information on Head Starts' other components.

The Basic Educational Skills Program is the newest experimental project initiated by Head Start. As stated in the BES Program Guidelines:[1]

> The purpose of the project is to demonstrate and test effective educational strategies that help young children acquire developmentally appropriate educational skills in a climate that supports physical, intellectual, social, and emotional development. The project links Head Start programs and public schools, together with parents, in a collaborative effort to facilitate the child's learning experiences. The overall objective is to enhance school readiness, later school achievement, and to promote attitudes conducive to life long learning. The specific aim is to try out a variety of educational approaches to increase the child's basic educational skills, with emphasis on learning outcomes in oral language, reading, writing, mathematics, science, problem-solving, and learning attitudes. (Learning attitudes includes self-esteem as a learner, motivation, curiosity, initiative, purposefulness, persistence, task completion, and interest in life-long learning.) (p. 1)
>
> The goals of this project are to examine the effectiveness of a variety of approaches of implementing the four program elements: Curriculum, Parent Involvement, Teacher Attitudes and Behaviors, and Continuity. These program elements have been highlighted by reviews of research and educational practice as among the principal variables that affect children's educational achievement. The principal purpose of the BES field experiment is to determine the contribution of variables associated with the four elements to children's acquisition of basic educational skills. (p. 5)

Individual Head Start programs are operated by local grantees which are community action organizations, public school systems, tribal councils, and other non-profit agencies. Decisions about such issues as staff, curriculum, facilities, and recruitment procedures are made by a local policy council composed of parents and other members of the community. With this kind of local initiative, Head Start programs vary widely from one location to another in the ways in which they deliver services--within the guidelines of performance standards set by the Federal agency which funds and administers the program, the Administration for Children, Youth and Families (ACYF). The national office of

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[1] Administration for Children, Youth, and Families, Basic Educational Skills Project: A Head Start Research and Demonstration Initiative in Collaboration With the Elementary Schools; Guidelines for Local Head Start Programs and Elementary Schools, March 1979.

ACYF also periodically funds special demonstration programs (such as BES) for the purpose of initiating testing, and disseminating innovative program ideas.

The regional offices of ACYF are responsible for monitoring local program service delivery to ensure that each program meets the required prformance standards. Evaluations of Head Start program outcomes are initiated by the national office of ACYF. The evaluations are diverse and include three distinct kinds:

- Evaluations of the basic National Head Start program, which use representative national samples of about 30 of the total 1,800 programs, and examine the areas of Health Services, Educational Services, Social Services, Parent Involvement, Services to Handicapped Children, Services to Migrant Children, and Staff Training.
- Evaluations of the Head Start demonstration programs, each of which involve about a dozen sites nationally, including, for example, Project Developmental Continuity, the Child and Family Resource Program, Home Start Training Centers, the Bilingual/Bicultural Curriculum Project, and the BES Project.
- Projects to develop evaluation measures and methods; for example, the project to translate the ETS CIRCUS preschool test battery into Spanish, and the project to develop a comprehensive set of measures of program effects on preschool children.

This evaluation represents both the first and second categories above; it is a nationwide evaluation of the Educational Services of the basic Head Start Program and the evaluation of the newest Head Start demonstration project, Basic Educational Skills.

ACYF has actively gathered information over the past fifteen years regarding both program delivery and program effects. A unique aspect of the evaluation described in this report is its focus on the relationship between program delivery and program effects on a national scale.

Overview of the Head Start Evaluation Design

This evaluation is a longitudinal study that will follow children and their parents from preschool through the fourth grade. The study focuses on the preschool and elementary experiences of three groups of children and their parents:

- Those who participate in typical Head Start programs--the Head Start Study Group
- Those who are eligible for Head Start but who are not enrolled--the Alternative Services (Control) Group
- Those who participate in the Basic Educational Skills demonstration program--the BES Group

The major evaluation questions to be addressed in this study are as follows:

1. What different types of approaches do Head Start programs use to deliver educational services? How do these approaches differ in BES programs? How do these approaches differ from programs in alternative service settings?
2. How do different program approaches, and ways children and parents partake of the programs, affect the benefits achieved by children and parents?
3. Do children and parents in BES programs benefit more than children and parents in non-BES Head Start programs? Do children and parents in both BES and non-BES Head Start programs benefit more than children and parents in alternative service settings?

The dominant issues contained in this set of questions is a focus on the relationships between program delivery and program effects on a national scale.

As mentioned above, the evaluation is longitudinal and will study children (and their parents) from preschool through the fourth grade. Over the next three years, three cohorts (one small cohort and two full cohorts) of preschool age children will be studied. Each full cohort will be drawn from 16 Basic Educational Skills demonstration programs and from 30 randomly selected Head Start programs and their communities. It will involve 4560 children and their familier per cohort: 60 BES children from each BES program, 60 Head Start from each regular Head Start program, and 60 non-Head Start children from each regular Head Start program's community.

The study design is innovative for two reasons. First, it focuses on the relationships between process and outcome variables in preschool settings. Second, it is one of the first preschool field evaluations to incorporate a true experimental design. In those instances in which a participting Head Start program receives applications from more children than it can serve, random assignment of children into the Head Start program and a non-Head Start group will be implemented. The use of this study plan will, hopefully, result in one of the strongest research efforts ever conducted under the auspices of ACYF.

The impact of the educational services component and the Basic Educational Skills program on children will be measured in multiple ways, including classroom observations (piloted during Spring 1979 site visits), individual child in-classroom observations (the classroom observation system will be modified for this purpose), academic performance in kindergarten and beyond, possibly observations of child and parent together, and, of course, individual testing during the Head Start year. This report concerns the history and development of the first individual testing battery.

The Request for Proposals for this evaluation called for child outcomes to be measured in four areas:

- "Developmentally appropriate pre-academic and cognitive skills as measured by standardized test and teacher reports of classroom behavior and potential. Outcomes to be assessed should parallel the following domains: language, reading, writing, mathematics, science, and problem solving.
- "Motivational orientation toward school experiences, toward learning, self-concept as a learner, and ability to delay gratification.
- "Indications of sociability toward peers, toward teachers, and toward adults in general.
- "Long term staying power of the experience (ability to adapt to later schools, assignments to special education classes, patterns of grade retention)."

Emphasis in this present battery will be on the first point, that is, cognitive and communication skills. Motivational orientation and self-concept are difficult to accurately measure in the young child. These areas will later be assessed primarily by observational measures. The third area of social skills is tapped by one test in the battery. Finally, "long-term staying power" will be examined later by means of observations, individual testing and school records.

Organization of This Report

Chapter One presents the history of the identification of areas in which to test. Chapter Two contains descriptions of all tests screened for possible inclusion in the battery. Chapter Three discusses the tests selected for the Pilot Test Battery and Chapter Four presents the actual Fall Test Battery.

CHAPTER ONE

Identification of Skill Areas

Background of the Evaluation

This evaluation is twofold: it will assess the impact of the educational services component of Head Start on young children by comparing children who have experienced Head Start with a group of children who do not participate in Head Start. Secondly, the effectiveness of the Head Start Basic Educational Skills project is being studied. One battery has been designed for use in both aspects of the evaluation. The BES Phase I guidelines (Klein, 1978) thus were used heavily in identifying areas in which to test children.

Basic Educational Skills Initiative

The ACYF Basic Educational Skills project was initiated in response to President Carter's "call for efforts to assist children in acquiring the basic skills they need to function successfully in a complex society...although these [skills] will contribute to children's later academic learning, they also include skills in communication and problem solving as well as positive learning attitudes." (Klein, 1978, p.1)

What are basic educational skills? "Within the context of Head Start and its goals, developmentally appropriate skills are those which are necessary for the later acquisition of skills and learning commonly recognized as reading, writing, and mathematics, but which also include language, science, problem solving and the development of positive attitudes toward learning." (op.cit., p.2) These "preskills" are not, it is pointed out, watered down versions of the academic skills usually taught in the primary grades. This is a vital point;

there is substantial evidence in the cognitive development literature that the cognitive processes of four or five year olds and seven or eight year olds differ qualitatively, not just quantitatively. According to Piaget, for example, (see Flavell, 1963, for a review of the theory), the younger child is in the stage of preoperations, characterized by concrete and static thought, inability to take another's point of view, and an inability to take into account more than one aspect of a problem at a time. The older child is in the sub-stage of concrete operations. The concrete operational child is better able to deal with abstractions, can take points of view other than his own, and can understand that two aspects of a problem may compensate for each other. One cannot simply follow a continuum of skills from age 4 to age 7: differences in thought processes must be taken into account. The task of identifying appropriate pre- or basic skills is thus not a simple one.

Some of these skills are identified in the BES guidelines: "Continued interest in learning, the ability to understand and use language in speaking and listening to others, beginning to understand concrete relationships such as quantity, size and shape, to discriminate between different shapes and colors, and to begin to recognize symbols such as letters and words." (Klein, 1978, p.3)

The BES Phase I guidelines paper (Klein, 1978) and the Abt approach paper (Bache, Brush, Larson and Mathis, 1978) provided us with an outline to the definition of the basic skills to be considered in designing the battery. The guidelines in the Abt paper delineate the BES curriculum into five basic areas: Oral Language, Reading, Writing, Mathematics, and Science/Problem Solving (see Table 1.1).

TABLE 1.1
Basic Educational Skills: Areas for Curriculum Focus

Oral Language	Reading	Writing	Mathematics	Science Problem Solving
NARRATION • Discussing events and asking questions in the context of conversation	COMPREHENSION • Listening to stories and engaging in conversations about them	MOTOR COORDINATION • Using a variety of art materials for painting, drawing	CLASSIFICATION • Grouping and ordering sizes and shapes in the context of block play	EXPERIMENTATION • Mixing paint or playdough for use in art activities
COMMUNICATION • Engaging in dialog in dramatic play	SYMBOLIZATION • Pretending to read by using pictures and props symbolically in dramatic play	SHAPE DISCRIMINATION • Recognizing two dimensional shapes, as a form in pictures or one's name	NUMERATION • Matching shapes, colors, or symbols to identical items during games with manipulatives	EXPLORATION • Balancing structures or creating and using inclines in block play
DESCRIPTION • Describing block buildings, specific block shapes and accessories	SEQUENCING • Using manipulative materials to sequence pictures or arrange page	SENSORY INTEGRATION • Skipping, hopping, and climbing using alternate feet/legs, hands/arms in outdoor play	QUANTIFICATION • Measuring ingredients for cooking activities	COMPARISON • Using a magnifier or balance with a variety of manipulative materials
AUDITORY DISCRIMINATION • Differentiating sounds in the context of signing or listening to music	FIGURE-GROUND DISCRIMINATION • Looking at pictures in books with attention to shapes, colors, and outlines		NUMERICAL RELATION • Clapping, foot-stomping, and beating instruments to music	INFERENCE • Baking or cooking to anticipate foods' changes in form, color, taste, and smell
CONCEPTULATIZATION • Taking field trips to familiar places in the community, such as grocery, fire station	ORIENTATION • Taking field trips to places that make written language meaningful, e.g., library		ESTIMATION • Running, throwing, and catching a ball in outdoor play	OBSERVATION • Taking field trips or short walks to observe nature

Concept Papers

Although the BES guidelines are fairly complete in presenting examples of classroom activities that relate to the BES areas, identifying testable precursor or basic skills is somewhat more difficult. Therefore, NTS took the further step of consulting several child development experts for their recommendations.

Robert Calfee of Stanford University contributed the paper on assessment of precursor skills to reading and writing (Appendix A). Joan Heller and Lauren Resnick wrote the paper on "Skills and Concepts Preparatory to Formal Schooling and Mathematics" (Appendix B). Jacelyn Wedell-Monnig of NTS met with Irving Siegel of ETS to discuss skills essential to the science/problem solving area. We felt that NTS had the in-house competence to determine precursors in the language area. A brief review of each paper and the consultation follows.

Reading/Writing

General suggestions. Calfee points out in his paper that it is difficult, at the preschool level, to clearly differentiate oral language skills from prereading and prewriting skills. He also notes that Head Start children "are likely to come from a variety of cultural and linguistic backgrounds...the tests must be adaptable to these variations." (pp.2-3).

Calfee also comments extensively on criteria for evaluating tests. In addition to the traditional criteria of reliability and validity, he discusses appropriateness, independence, discriminability, cost, and repeatability. Reliability and validity should be well understood without definition here. Appropriateness is particularly relevant to this evaluation; it has to do with whether or not an instrument measures a goal behavior, or what is being taught. Independence deals with skills being measured: Are they separable enough so that subtest scores are not highly intercorrelated? Discriminability refers to scores themselves - whether or not the range of scores allows one to differentiate among children (discrete scores are easier to interpret in this regard than continuous scores). Cost concerns the cost of administration as against the yield of information. Although Calfee discussed repeatability as a criterion useful to the classroom teacher, it is also a criterion highly relevant to this evaluation. Once tests have been selected, piloted, and training and testing materials and procedures prepared, it is both most cost efficient and informative to use the same test again.

Specific Reading/Writing. Calfee breaks down reading and writing at the primary level and identifies precursor skills at the preschool/kindergarden level. For this paper, he views reading and writing as inverse processes with four primary facets each at both the precursor and primary levels. Calfee's expansion of these facets into specific curricular activities are seen in Table 1.2 and 1.3.

Decoding (reading) and mechanics (writing) can loosely considered to be inverse processes, both concerned with transformations of symbols. Transformations at the preschool level include visual to oral (sight word vocabulary and alphabet knowledge), auditory recognition (recognition of phonemes), and understanding of visual symbols in general (metaknowledge of the printed word), as well as abilities to reproduce visual symbols (mechanics of writing). Receptive and productive vocabulary are included as the child clearly must be in command of a certain minimal level of language before the acquisition of reading and writing can commence. Sentence understanding and production concern the ability of the child to concentenate concrete concepts into coherent units. The child must also have a conscious understanding of what a sentence is (metaknowledge). Note that for both reading and writing, the precursors in sentence understanding

TABLE 1.2

Specific Facets of Reading for Precursor and Primary Curriculum Assessment
(Calfee, 1979)

		PRESCHOOL KINDERGARDEN PRECURSORS	PRIMARY CURRICULUM
READING	DECODING	Common word sight vocabulary Alphabet knowledge (discriminate, recognize, label) Auditory-phonetic (discriminate and recognize) Metaknowledge of printed word Oral morphophonemics	Sight word recognition Simple letter-sound correspond's Fluent blending Morphophonemics of print Syllables
	RECEPTIVE VOCABULARY	Most precursors assess oral language to describe concrete or pictured experience. Style, level and usage of vocabulary typical of school settings	Recognize common meanings of nouns and verbs Relational and functional words Fine distinctions Use of context to guess meaning and/or disambiguate Relate experience to symbol; symbol to symbol
	SENTENCE UNDERSTANDING	Understanding of spoken sentences (including reproduction and para phrase) Metaknowledge of sentences	Understanding of written sentences of varying complexity Recognize punctuation symbols Fluency in producing suprasegmental patterns in sentence reading
	TEXT COMPREHENSION	Direct parallels in oral language, including "conversation grammars typical of young children's conv" sations, and "text grammars" er- typical of printed passages.	Analysis of structure in expository and narrative prose (measure by recall structure) Detection and retrieval of literal facts in prose Use of implicit and explicit context (in particular, world knowledge and pictures)

TABLE 1.3

Specific Facets of Writing for Precursor and Primary Curriculum Assessment (Calfee, 1979)

		PRESCHOOL KINDERGARDEN PRECURSORS	PRIMARY CURRICULUM
WRITING	MECHANICS	Crayon and pencil art, letter printing Reproduction of words by letter tiles	Letter and word production Spelling (single syllables, bound morphemes, polysyllables)
	PRODUCTIVE VOCABULARY	Parallel tasks in oral language appropriate to age level and content of conversation--might include Torrance-type association tasks	Label common objects and actions Label relations and functions Precision in word choice Crativity and volume in vocabulary output
	SENTENCE PRODUCTION	Oral production to cue (repeat sentence, respond to picture) Oral paraphrase of sentence	Grammar and punctuation Paraphrase, extension and combination of sentences Write coherent discourse on request and to cue
	STORY PRODUCTION	Same as above, but with multiple sentence materials	Consistent and clear use of anaphora, metaphor Meta-understanding of story structure

and production are oral: understanding of spoken sentences and oral production of sentences. Finally, text comprehension and story production are simply extensions of sentence understanding and production to multiple sentence materials. Metaknowledge (conscious understanding) of story structure is not listed as a precursor, however, but is included in the primary curriculum.

Mathematics

Heller and Resnick took a somewhat different and highly specific approach in their paper on "Skills and Concepts Preparatory to Formal Schooling and Mathematics" (Appendix B). They attempted to integrate information from two overlapping sources: component analysis of all the major classes of mathematical and instructional objectives and activities called for in first grade, and recent literature on the kinds of quantitative knowledge children are capable of acquiring without formal training. Heller and Resnick point out that many skills in their list are formally considered to be part of the first grade curriculum. However, the fact that many children from middle class homes enter first grade already familiar with these concepts places children from other environments (i.e., homes in which learning is not stressed) at a disadvantage. Thus, such skills could, and perhaps should, be taught during the Head Start ages.

The authors identify three "classes of knowledge...(1) perceptual and fine motor skills; (2) general conceptual knowledge of relevance to mathematics; and (3) knowledge of specifically quantitative skills and concepts." (p.2) Perceptual and fine motor skills are vital to early success in mathematics. From the onset of formal instruction, children are required to place marks on paper. "It is clearly assumed that the ability to follow these instructions by making the required marks on paper is automatized to the point where the children can concentrate on the mathematical content of the lesson." Children who enter first grade with a limited perceptual-motor skill, e.g., 'culturally disadvantaged,' fail to profit fully from academic instructions." (p.3) Perceptual skills are also necessary for correctly interpreting pictorial or concrete representations of quantitative relationships, frequently used during formal mathematical instruction.

General conceptual knowledge concerns knowledge of concepts of spatial and temporal orientation, color, and shape. Such concepts are relevant as well to reading, writing, language and science/problem solving skills.

The child must also have knowledge of specifically quantitative skills and concepts, according to Heller and Resnick. Skills refer to knowledge of procedures, for example, knowing how to count. Concepts refer to familiarity with facts and vocabulary. The authors divide skills and concepts into four categories: (1) counting and numbers, (2) concepts of equivalence, more, and less, (3) mathematical operations and problem solving, and (4) measurement.

Heller and Resnick have prepared a list of specific skills and concepts relevant to mathematics. This list is presented in Table 1.4 (an expanded version of this list is contained within their paper in Appendix B). Items marked with an asterisk are usually formally taught in first grade. Items marked with a number symbol are taught in first grade in the context of more complex knowledge. Items marked with a double asterisk are taught after first grade.

Science/Problem Solving

The consultation with Irving Siegel covered general problems of assessment as well as the specific content area of science and problem solving. Siegel was also interested in the Head Start curriculum problems in teaching certain concepts. The science/problem solving area of BES involves experimentation,

TABLE 1.4

Skill and Concepts Relevant to Mathematics
(Heller and Resnick, 1979)

PERCEPTUAL AND MOTOR SKILLS

Paper and pencil activities:

Skill or Concept

1. Match figures
2. Match quantitative symbols
3. Draw line connecting figures
4. Draw line connecting dots
5. Color in simple figures
6. Draw ring around specified figure
7. Draw ring around set of figures
8. Draw ring around subset of group of figures
9. Copy simple lines
10. Copy simple geometric forms and symbols

Manipulations of Concrete Objects

11. Match objects
12. Combine sets (imitate demonstration)
13. Increment set size (imitate demonstration)
14. Decompose set into two subsets (imitate demonstration)
15. Decrement set size (imitate demonstration)
16. Execute one-to-one correspondence (pair with linear array)
17. Executive one-to-one correspondence (create two arrays)

Relational Concepts

18. Recognize colors by name
19. Recognize basic geometric shapes by name
20. Indicate understanding of top/middle/bottom
21. Indicate understanding of above/below
22. Indicate understanding of over/under
23. Indicate understanding of in/out
24. Indicate understanding of up/down
25. Indicate understanding of left/right
26. Indicate understanding of before/after

TABLE 1.4 (Continued)

Quantitative Concepts and Skills

Set and relative numerosity:
16 and 17 (Above) 1-1 correspondence

27. Notice and name change in set size

28. Equalize set size: concept of "same"

#29. Change set size: concept of more/less

Counting and numbers:

30. Indicate knowledge of string of number names

31. Demonstrate ability to tag each of array once and only once

#32. Determine cardinality of set

#33. Create set of named size

#34. Indicate ordinality

*35. Read numerals

*36. Write numerals (optional)

*37. Compare sum

*38. Compare array with numeral (optional)

Arithmetic operations:

#39. Add to determine new value of set when some more added

#40. Subtract to determine new value of set when some taken away

#41. Add to determine combined value of two sets

#42. Subtract to determine subset value when set decomposed (optional)

#43. Subtract to determine difference between two values (optional)

**44. Multiply (or add) to determine result of successive changes (optional)

**45. Divide (or subtract) to determine quantity each recipient will get if quantity equally distributed (optional)

#46. Perform abstract mental addition

#47. Perform abstract mental subtraction

*48. Complete written addition problems with sum unknown

*49. Complete written subtraction problems with difference unknown

Fractional concepts:

50. Indicate understanding of "part"

*51. Indicate understanding of "half"

52. Indicate understanding of "fair share"

Measurement

53. Indicate familiarity with measurement instruments

54. Indicate understanding of big/small

55. Indicate understanding of bigger/biggest; smaller/smallest

56. Indicate understanding of long (or tall) short

57. Indicate understanding of longer/longest; shorter/shortest

58. Determine relative size by direct comparison

59. Identify object that is as long as referent

exploration, comparison, inference and observation. Siegel discussed the difficulty of teaching this questioning/inquiry approach to children from lower-income homes. The atmosphere in many of these homes, he noted, is highly authoritarian and didactic-completely opposed to the inquiry approach to learning. Despite superb teaching methods, what is gained in the classroom may be undone by an unsupportive home environment. It is also very difficult to test a child's development in these inquiry areas. Siegel expressed his opinion that the science/problem solving area would be best assessed by focusing on language. Can the child transform an idea from one symbol system to another? Does he understand expressed quantities (e.g., more/less)? The battery, as will be seen shortly, adopts this approach and is heavily language-oriented.

Identification of Skills Areas for Testing

The next step in selecting a battery was to determine a philosophy by which to select skill areas to assess. We recognize the ACYF/Abt BES areas as guidelines for curriculum development. Overlap between the areas is so great, however, that it is not entirely appropriate to use these areas for test selection. As Calfee points out in his concept paper, the tests selected should be relatively independent of each other so that test scores are not hightly intercorrelated. Our philosophy is based, however, on the RFP which states that emphasis should be placed on "educational and achievement outcomes".

Our approach, then, was to first closely examine each of the BES areas in order to identify independent elements. Secondly, we studied the concept papers and selected some additional elements. The result was the list of areas and elements presented in Table 1.5. Six skill areas were selected, within which prospective tests were examined.

TABLE 1.5

Areas of Skills to be Assessed

Factual Knowledge

Letter Names
Number Names
Color Names
Shape Names
World Knowledge

Memory Skills

Visual Memory
Auditory Memory

Cognitive Skills

Spatial Reasoning
Classification
Numeration and quantification
Problem Solving

Communication Skills

Oral Language Production
Vocabulary
Creativity
Syntax

Oral Language Comprehension
Vocabulary
Comparatives

Perceptual/Psychomotor Skills

Visual Discrimination
Auditory Discrimination
Fine Motor Skills
Gross Motor Skills

Social Skills

Both the reading/writing and mathematics concepts papers emphasize the need for the child to master certain skills before the later respective skills can be learned in the primary grades. Many of these skills concern the acquisition of facts such as letter, number, color, and shape names. We included world knowledge, since the child who is not in command of general and basic facts will be at a certain disadvantage in acquiring further information. Likewise, the child whose visual and auditory memory skills are not well developed will not be able to master basic reading/writing and mathematics concepts.

Cognitive skills are essential in gaining understanding of number systems as well as in solving problems.

Communication skills are basic to the areas of language and science/problem solving, as well as to reading/writing. Finally, as pointed out by Heller and Resnick in their concept paper, certain perceptual/psychomotor skills are essential to success in many primary grade tasks.

Social/emotional development is not emphasized in this list to the same extent as cognitive skills. We feel that such development cannot be fully assessed by means other than direct observation of the child. High/Scope came to the same conclusion in their recommendations for measures for Project Developmental Continuity (Love, Wacker, and Meece, 1975). In terms of self-concept, for example, High/Scope stated that:

> The fundamental difficulty with the construct of self-concept is the multiplicity of definitions. Many critics (Coller, 1971; Crowne and Stephens, 1961; Taylor, Winne, and Marx, 1975) have concluded that what are called self-concept measures actually assess many different constructs. No agreed upon operational definition of self-concept exists, largely because there is no adequate theory within which it can be based. As a result there are a great variety of instruments and techniques for narrowly defined aspects of self-concept, so that "it is likely to be defined as 'that which a self-concept test measures'" (Walker, 1973). This, of course, makes the selection of any one instrument as a measure of program effectiveness especially problematic. (Love, Wacker, and Meece, 1975, p.18).

We have an appropriate observation system under development: the system is discussed in the Phase I Final Report for this project. Likewise, other areas discussed in the NTS Proposal (McNeil, Stenner, Wedell-Monnig, Mengel, et. al., 1978) cannot be assessed in one or two sessions. Data on school and community success, for example, will be collected from records over the course of evaluation.

CHAPTER TWO

Screening of Tests

A summary form was developed (see Appendix C) for screening each test examined for possible inclusion in the battery. After summaries on all considered tests were complete, the summaries were studied to determine which tests met the following criteria (order below does not indicate relative importance):

1. Yields relevant and analyzable data. The test should be relevant to the skills we have determined are important to assess. The results must be interpretable in light of Head Start program objectives.
2. Free of cultural biases to the extent possible. Many cultural groups are represented in the population under study. We rejected many tests on the basis of being appropriate for only a few of these groups. Tests must be fair both in terms of content and scoring of responses.
3. Normed (or at least used) on a population relevant in terms of social class, cultural groups, and age. Although we do not plan to compare our data to existing norms, previous use of the test with a similar population gives indication of whether other researchers found the measure to be reasonably relevant to that population.
4. Reliability and validity data available and acceptable. Preferably used in other large scale evaluations of preschool and elementary level programs to improve the comparability of results from one evaluation to another.
5. Instrument must have high generalizability (see McNeil, et al, 1978, and Project Report 8 for a full discussion of generalizability).
6. Instrument can be readministered to same children (repeatability). As this evaluation involves pre- and post-testing, we must be able to use the same tests at least twice for each child.
7. Able to be administered by trained paraprofessionals. In most sites, children will be tested by local data collectors, hired and trained by NTS. It is vital that these people can master the test in a short but intensive training session. This means that testing procedures must be very clear and precise.

8. Able to be administered quickly and with minimal equipment. The testing time per child will be no more than one hour. Therefore, each test in the battery must be brief and concise. Minimal equipment needs reduce cost and difficulty of testing.

9. Individually administered. All tests will be given in individual sessions with only the tester and child present, if at all possible.

10. Child should be unaware that she/he has failed an item. Tests were carefully examined to determine if a child could become unnecessarily discouraged. Feedback on selected tests is neutral as often as possible to avoid giving the child information on his or her performance. We feel that neutral feedback will have the least effect on the child's performance on subsequent tests.

Many tests used in other assessments were not even screened as they did not meet more than one or two of the criteria. The tests that we screened are listed in Table 2.1. Also in Table 2.1 are brief summaries of the data we examined to make preliminary test selections.

Two assessment batteries and one test emerged from the screening as highly relevant to our evaluation: The McCarthy Scales of Children's Abilities (MSCA) (McCarthy, 1972), the Basic School Skills Inventory (BSSI) (Goodman and Hammill, 1975), and the Preschool Interpersonal Problem Solving task (PIPS) (Spivak and Shure, 1974). Neither of the two batteries were judged to be appropriate for use in its entirety. The MSCA is a lengthy test and includes many subtests not of interest to us. The BSSI not only contains material not useful to us, but was designed as an informal assessment device to be used by teachers and needed to be redesigned in order to be administered in a consistent manner.

Certain subtests of the MSCA were used by High/Scope in the assessment of Project Developmental Continuity. High/Scope's decisions on the subtests for their own batteries were taken into account in designing the present battery.

The specific MSCA and BSSI subtests selected and the modifications made are discussed in the next session, along with a summary of the PIPS.

TABLE 2.1

Tests Considered for Battery

Variables Test	Contents						Age Range	Length of Test	Cultural Biases	Psychometric Variables			Comments
										Relevant Norming Population	Validity Data	Reliability Data	
Animal Crackers						X	Preschool Grade 1	20-45 mins.	Not recommended for bilinguals	No (largely white)	Data from Gumpgookies. Sig. correlations with teacher ratings of motivation	r = .94-.98 (KR-20)	Many references to school and teacher - bias against control group.
Basic School Skills Inventory: Basic Information	X						4-6 years	5-7 mins.	Some items	Yes	High correlations with MRT and teacher ratings (entire battery)	r = .60-.76 (Internal consistency coefficients) High test-retest correlations with small n	Intended to be administered by teacher.
Basic School Skills Inventory: Number Readiness	X		X	X			4-6 years	7-10 mins.	No	Yes	High correlations with MRT and teacher ratings (entire battery)	r = .78-.90 (Internal consistency coefficients) High test-retest correlations with small n	Intended to be administered by teacher.
Basic School Skills Inventory: Reading Readiness	X		X		X		4-6 years	7-10 mins.	Auditory discrimination items	Yes	High correlations with MRT and teacher ratings (entire battery)	r = .86-.88 (Internal consistency coefficients) High test-retest corelations	Intended to be administered by teacher
Boehm List of Basic Concepts	X			X			Grades K-1	15-20 mins.	?	Insufficient data	No data reported	r = .88-.90 (split half)	Concepts may be too advanced for 4 year olds
CIRCUS: Copy What You See (A)					X		preschool	30 mins.	No	No (largely white, middle class)	No studies reported	r = .87-.90 (alpha) r = .89-.90 (split half)	Cannot be machine scored
CIRCUS: Do You Know (A)	X						preschool	30 mins.	Definite biases	No (largely white, middle class)	No studies reported	r = .77-.79 (alpha) r = .79-.80 (split half)	Very biased in favor of white middle class
CIRCUS: Finding Letters and Numbers (A)	X				X		preschool	30 mins.	No	No (largely white, middle class)	No studies reported	r = .86 (alpha) r = .86-.87 (split half)	
CIRCUS: How Much and How Many (A)	X		X	X			preschool	30 mins.	Biased	No (largely white, middle class)	No studies reported	r = .86-.87 (alpha) r = .87-.88 (split half)	Quantitative concepts measure may be confounded with vocabulary comprehension
CIRCUS: How Words Work (A)				X			preschool	30 mins.	Biased	No (largely white, middle class)	No Studies reported	r = .43-.78 (alpha) r = .75-.81 (split half)	Understanding of factors; scores difficult to interpret
CIRCUS: Listen to the Story (A)				X			preschool	30 mins.	Biased	No (largely white, middle class)	No Studies reported	r = .60-.79 (alpha) r = .78-.80 (split half)	Receptive language

TABLE 2.1 (Continued)

Tests Considered for Battery

Variables	Contents						Age Range	Length of Test	Cultural Biases	Psychometric Variables			Comments
Test										Relevant Norming Population	Validity Data	Reliability Data	
CIRCUS: Look Alikes (A)					X		preschool	30 mins.	No	No (largely white, middle class)	No studies reported	r = .52-.84 (alpha) r = .86-.88 (split half)	Measures ability to Mark letters, number, shapes, objects
CIRCUS: Say and Tell (A)					X		preschool	untimed	No	No (largely white, middle class)	No studies reported	r = .49-.72 (alpha)	Productive language. May be difficult to machine score
CIRCUS: Think it Through (A)			X				preschool	30 mins.	Relatively unbiased	No (largely white, middle class)	No studies reported	r = .81-.82 (alpha) r = .81-.82 (split half)	problem solving; classification, sequences
Cognitive Abilities Test (Primary Battery)			X				K - Grade 2	Untimed; averages 54 mins.	No	Data not yet available	Data not yet available	For previous form - r = .92-.94 (KR-20)	size, position, quantity, classification, vocabulary, relational concepts
Cooperative Preschool Inventory			X	X	X	X	3-6 years	15 mins.	Intentional see Comments	Yes	r = .39-.65 with Stanford Binet IQ	r = .88-.91 (KR-20) r = .84-.92 (split half)	Designed to demonstrate effects of intervention and degree of disadvantane
McCarthy Scales of Children's Abilities (MSCA): Block Building			X		X		2 1/2-8 1/2 years	3-5 mins.	No	Yes	High position correlation (.70-.85) of total score (entire battery) with WPPSI and Stanford Binet IQ's. Moderate correlations (.30-.49) with first grade achievement tests. Very small sample (n=35)	Average split half coefficients: General cognitive scale, r = .93 Perceptual-Performance scale, r = .84 Verbal scale, r = .88, Memory scale, r = .79 Quantitative Scale, r = .81 Motor Scale r = .79	Scoring would have to be revised; too precise as is for real time scoring.
MSCA: Puzzle Solving			X					5-10 mins.	No				Consistent scoring may be a problem
MSCA: Pictorial Memory		X		X				3-5 mins.	Yes some items				Would be appropriate if better items selected.
MSCA: Word Knowledge				X				3-5 mins.	Yes some items				Stimuli appear inappropriate for use with this populationd
MSCA: Number Questions			X					3-5 mins.	No				Too difficult for this population
MSCA: Tapping Sequence		X	X					3-5 mins.	No				Too difficult for this population
MSCA: Verbal Memory		X		X			4-8 1/2 years	3-5 mins.	No				Used in PDC evaluation
MCSA: Leg Coordination					X		4-6 1/2 years	3-5 mins.	No				
MSCA: Arm Coordination					X		2 1/2-8 1/2 years	3-5 mins.	No				Some items difficult for examiner.

TABLE 2.1 (Continued)

Tests Considered for Battery

Variables	Contents									Psychometric Variables			
Test							Age Range	Length of Test	Cultural Biases	Relevant Norming Population	Validity Data	Reliability Data	Comments
MSCA: Imitative Action					X		2 1/2 - 8 1/2 years	3-5 mins.	No	Yes		Test-retest coefficients General Cognitive scale, r = .89-.91 Perceptual Performance scale, r = .78-.84 Verbal scale, r = .82-.89 Memory scale r = .79-.93 Quantitive scale, r = .89-.90 Motor scale, r = .69-.78	
MSCA: Draw A Design			X		X			5 mins.					Scoring may be difficult
MSCA: Draw A Child			X		X			3-5 mins.	No				Scoring may be difficult
MSCA: Numerical Memory		X					4- 6 1/2 years	3-5 mins.	No				Recal Digits
MSCA: Verbal Fluency			X	X			2 1/2 - 8 1/2 years	1-2 mins.	Some categories				Modified and used in PDC evaluation
MSCA: Counting and Sorting	X	X						3-5 mins.	No				
MSCA: Opposite Analogies			X	X				3-5 mins.	No				Difficult to translate into Spanish
MSCA: Conceptual Grouping	X		X	X			4- 6 1/2 years	3-5 mins.	No				
Peabody Picture Vocabulary Test				X			3.3 - 17.8 years	Average 10-15 minutes	Somewhat to white, middle-class; sexist	no; normed in one city	Predictive validity-PPVT scores at begining of 1st grade correlated with MAT scores at end of year word knowledge r = .35 reading r = .39	r = .67 for 6 year olds (Form A and B)	
Preschool Embedded Figures Test					X		3-5 years	25 mins.			Correlates .55-.67 with WPPSI Block Design subtest	r = .74-.91 (split half) r = .69-.75 (test-retest)	Visual discrimination
Preschool Interpersonal Problem Solving Test						X	4-5 years	20-25 mins.	No; multiethnic pictures included	No; normed on inner city only	Sig. correlations with teacher rating of social adjustment	r = .86-.89 (interrater) r = .59 (test-retest)	Recommend using only first half of test; used in PDC eval.
SOMPA: Bender Visual Motor Gestalt Test					X		5-11 years	20 mins.	No	No Data	No Data	No Data	More appropriate for neurological assessments
SOMPA: Physical Dexterity Tasks					X		5-11 years	20 mins.	No	No Data	No Data	No Data	More appropriate for screening for abnormalities
Steinback Test of Reading Readiness	X	X	X	X	X		Grades K-1	40 mins.	Yes	No	?	r = .58-.94 (KR-20) r = .95 (split half)	Many items outdated
Wechsler Preschool Primary Scale of Intelligence: Block Design			X		X		4- 6 1/2 years	15-20 mins.	No	Yes	Not reported	r = .76-.88 (split half)	Used in PDC evaluation

CHAPTER THREE

Pilot Test Battery

The battery utilized for the June 1979 Pilot Test is contained in Appendix D, which is a copy of the actual test booklet. A breakdown of the battery by test item and relevant skill is contained in Table 3.1.

Within Table 3.1, items relevant to each element are numbered only if the items of the subtests differ from one another in content (as in the first four tests listed). Otherwise, an X indicates that the entire test is relevant to the respective element.

Two areas have no test items: (1) Oral Language Production: Syntax, and (2) Perceptual/Psychomotor Skills: Auditory Discrimination. It is very difficult to test for and score performance in these areas without an unacceptable degree of cultural bias. "Proper" syntax varies greatly between subcultures in this country and even within a subculture. Likewise, a child learns to attend to certain sounds and not to others, depending upon the language or dialect he hears and speaks. (Syntax will be discussed again in the section on measures of language dominance, however.)

MSCA Subtests Selected

The MSCA is a well known, though relatively recent (1972) individual assessment measure for two-and-a-half to eight-and-a-half year old children. Although the eighteen subtests are grouped to yield six scales (verbal, perceptual-performance, quantitative, general cognitive, memory and motor) we decided against grouping for the present evaluation. Not all subtests in the groups were relevant to us.

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TABLE 3.1

Pilot Test Battery:
Item by Element Matrix[a]

Skill Elements / Test	FACTUAL KNOWLEDGE					MEMORY SKILLS		COGNITIVE SKILLS				COMMUNICATION SKILLS/ORAL LANGUAGE					PERCEPTUAL/ PSYCHOMOTOR SKILLS				
												PRODUCTION			COMPREHENSION						
	Letter Names	Number Names	Color Names	Shape Names	World Knowledge	Visual Memory	Auditory Memory	Spatial Reasoning	Classification	Numeration and Quantification	Problem Solving	Vocabulary	Creativity	Syntax	Vocabulary	Comparatives	Visual Discrimination	Auditory Discrimination	Fine Motor Skills	Gross Motor Skills	Social Skills
Conceptual Grouping			2,5,6	3,4,5,6					4,5,6,7,8,9							1,5,6					
Reading Readiness	2,4							3									1				
Number Readiness		1,3,6						4		5,7					4	2					
Basic Information			3	4	1,2,5,6,7,8																
Pictorial Memory						x						x									
Verbal Memory							x					x			x						
Opposite Analogies									x			x			x	x					
Verbal Fluency									x			x	x								
Draw-a-Child																	x		x		
Block Building								x									x		x		
Imitative Action																			x		
Leg Coordination																				x	
Arm Coordination																				x	
PIPS											x										x

[a] Item numbers are given where different items of a test pertain to different elements; an "x" indicates that all test items are relevant to the same elements.

The MSCA was standardized on a representative sample of 1,032 children (stratified according to age, sex, color, geographic region. father's occupation and urban-rural residence), with the sample closely matching the 1970 census data. Reliability and validity data for the MSCA is reported by scale, not by test. The average split-half reliability of the general cognitive scale is .93, while reliability of the other scales range from .79 to .88. (The reliability for the memory scale is based on test-ratest data). Test-ratest data for all scales was collected on a smaller sample (n = 125) in three age groups. A significant degree of stability was attained, ranging from coefficients of .69 (motor scale) to .90 (general cognitive scale).

Limited validity data on the MSCA is available. On a sample of 35 children, the General Cognitive Index was found to correlate .81 with the Stanford-Binet IQ and from .62 to .71 with the three Weschler Preschool and Primary Scale of Intelligence (WPPSI) IQ's.

Kaufman and Kaufman (1973) found evidence that "performance on the cognitive scales in the MSCA is not a function of color" (page 205). Using the standardization sample, Kaufman and Kaufman identified 148 black-white pairs, matched on age, sex, and father's occupation. The sample was grouped into three age categories: 2-1/2 to 3-1/2, 4 to 5-1/2, and 6-1/2 to 8-1/2. Few significant differences were observed in performance, especially on the subtests selected for use in the present evaluation. Mean differences in scores and p values are presented in Table 3.2.

As can be seen in Table 3.2, except for a significantly better performance by the oldest group of white children on the story part of Verbal Memory, all differences are in the gross motor tests. We take these findings as evidence that the MSCA is relatively culture-free, at least for the groups in the Kaufman and Kaufman (1973) investigation.

TABLE 3.2

(adapted from Kaufman & Kaufman, 1973)

Mean Differences in Raw Scores Obtained by Blacks and Whites on the MSCA Tests, by Age[a]

Test	2 1/2 - 3 1/2	4 - 5 1/2	6 1/2 - 8 1/2
Block Building	+0.7	-0.2	-
Pictorial Memory	-0.1	-0.2	+0.1
Verbal Memory I	+0.9	-0.3	+0.5
Verbal Memory II	+0.3	+0.2	+0.9*
Leg Coordination	+0.3	-0.7*	-
Arm Coordination	-0.8	-2.3**	-1.3
Imitative Action	-0.1	-	-
Draw-a-Child	+0.9	-0.4	+0.2
Verbal Fluency	+0.8	-0.9	+1.1
Opposite Analogies	+0.8	+0.2	+0.4
Conceptual Grouping	+0.6	+0.5	+0.4

*p <.01
**p <.05

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[a] Mean difference equals mean raw score of whites minus mean raw score of blacks. Some differences were not computed because the task in question was too easy for a particular age group. These are indicated by dashes.

The specific subtests selected are listed in Table 3.1. A brief description of each test and a discussion of changes made follows.

Block Building. The child is asked to duplicate four simple structures built by the tester out of one-inch cubes. Performance is untimed and even partial success earns some credit. Block Building is used to evaluate spatial reasoning, visual discrimination, and fine motor dexterity.

Pictorial Memory. The child is shown a card which has six colored pictures of familiar objects. The tester shows the card for ten seconds, while naming the objects. The card is then removed and the child tries to recall the objects. We felt that some of the objects in the original McCarthy test (specifically, padlock and paper clip) were inappropriate for the present population. Therefore, for the pilot test, we piloted three different cards of six objects each, for a total of 18 objects. Each child still saw only one card of six objects, however. We then selected one of the three cards for use in the fall child test battery. Pictorial Memory measures the child's visual memory and productive vocabulary skills.

Verbal Memory. There are two parts to this test. Part One consists of lists of words and sentences to be repeated by the child. The first two items contain concrete concepts likely to be within the child's receptive vocabulary; the next two items contain two-syllable words which are more abstract in meaning and the last two items are full sentences. In Part Two, the examiner reads a simple short story to the child, who is then requested to retell the story. He is not expected to repeat it verbatim, so long as the essential elements or ideas are present. Verbal Memory is used to test several skills, including auditory memory and productive and receptive vocabulary.

Leg Coordination. The six items assess motor coordination of the lower extremities including walking backward, walking on tip toe, walking a straight line, standing on one foot, and skipping.

Arm Coordination. This test evaluates development of the upper extremities in three gamelike activities: ball bouncing, catching the bean bag, and aiming a bean bag at a target. The target game was deleted as too difficult for both child and tester.

Imitative Action. Four simple motor tasks allow a few more observations of the child's motor skills.

Draw-a-child. Boys are asked to draw a boy and girls are asked to draw a girl. Human figure drawings are frequently used in clinical assessment as they provide information about the child's level of cognitive functioning as well as his personality. In this evaluation, the drawings are also useful in assessing perceptual motor development and fine motor coordination.

Verbal Fluency. The child's productive vocabulary and ability to classify and to think categorically are measured by asking the child to think quickly of words falling into each of four categories. For the pilot test, we utilized the four categories used in the evaluation of another Head Start demonstration project, Project Developmental Continuity, conducted by the High/Scope Foundation: animals, things to eat, people's names, and toys.

Opposite Analogies. The child's productive vocabulary and ability to classify is further tested by asking the child to provide the opposite of the key word in each of nine statements (e.g., an elephant is big and a mouse is __________).

Conceptual Grouping. The child's ability to classify and to generalize is tested with the aid of a set of twelve blocks in different shapes, sizes, and colors. Conceptual Grouping also assesses the child's factual knowledge of color and shape names. Nine problems are presented orally, with the child responding by appropriate selection, grouping, or elimination of the blocks.

BSSI Subtests Selected

The MSCA subtests were selected, not only for their appropriateness for the present evaluation, but also for the excellent statistical data available. The data available on the Basic School Skills Inventories is much more limited and less impressive. Nevertheless, the content of the three subtests selected closely parallels the preskills listed by Calfee in his concept paper in reading and writing, and by Heller and Resnick in their mathematics paper.

The BSSI was developed in such a way so as to be highly appropriate for an evaluation of preacademic skills:

> During the spring of 1971, 50 first grade and kindergarten teachers in the greater Philadelphia area were asked to describe in detail the educational and behavioral characteristics of four or five children in their classes. They were instructed to choose at least two children who were 'ready' for school and two who were 'not ready'. They were then to specify the particular skills [tasks]that the pupils could or could not do that have prompted their selection. A wide variety of children were described. The sample included children from urban, suburban, and rural residences and from both economically rich and depressed neighborhoods. Non-white pupils were included in approximately the same percentage as that in the community. An equal number of boys and girls were described. The most frequently mentioned skills designated by the teacher as being associated with ready and non-ready children were converted into 67 specific items. On the basis of face validity, each item was assigned to a different category of readiness: BASIC INFORMATION, SELF HELP, ORAL COMMUNICATION, HAND WRITING, READING READINESS, NUMBER READINESS, AND CLASSROOM BEHAVIOR. This collection of items comprised the first experimental form of BSSI. Only items that related directly to school performance and that were presumed to be teachable were included. For example, items related to the health of the child or to his home environment were excluded; important as these factors may be, there is little the teacher can do about them. (Goodman and Hammill, 1975)

This, and the second experimental form, were then tested and revised, and the final 84 item version of the BSSI completed.

The standardization sample of the BSSI consisted of 459 children, aged 4 to 6 years, half boys and half girls. Seventy percent of the sample were white; 22 percent were black; and 8 percent were Mexican-American. Half lived in urban areas, one-fourth in suburban and one-fourth in rural communities.

Reliability data is given in the form of internal consistency coefficients in Table 3.3. (Data will be reported here only for the three subtests selected. The remaining subtests are Self Help, Handwriting, Oral Communication and Classroom Behavior.) Despite reaching a significant level of internal consistency, several of the coefficients fall below .80, the traditionally accepted level of adequate test reliability. The authors make the point that the BSSI does differ in format from many standardized tests. "In a sense, each item of the BSSI is a test of discrete skill, rather than an item on a test of discrete skill." (Goodman and Hammill, 1975, p.39) This is generally true; in Basic Information, for example, the child is asked to name days of the week, the month of his birthday, identify coins, etc. Several discrete skills or areas of knowledge are being assessed within one subtest. It is reasonable that the internal consistency coefficients will be lower than a test in which all the items assess only one skill or area.

Test-retest data on the BSSI are very limited. White (1973) had 15 teachers score the items of the BSSI on two occasions. The percentage of items scored the same range from 87 to 98 with a mean of 96.

The validity data for the BSSI consists of correlations of scores with teacher ratings of overall readiness and with the Metropolitan Reading Test (MRT). These data are presented in Table 3.4. Guilford (1956) suggests that a coefficient of .30 denotes a useful prediction; Garrett (1954) puts the figure

TABLE 3.3

Internal Consistency Coefficients for the BSSI[a]
(adapted from Goodman & Hammill, 1975)

	Four Year Olds (n = 128)	Five Year Olds (n = 161)	Six Year Olds (n = 170)
Basic Information	.76	.68	.60
Reading Readiness	.88	.86	.79
Number Readiness	.90	.87	.78

[a] All coefficients significant at *p* <.01.

TABLE 3.4

Intercorrelations among BSSI Subscales, MRT Subtests, and Teacher Ratings of Overall Readiness[a]
(adapted from Goodman & Hammill, 1975)

	BSSI Subscales		
MRT Subtests	BI	RR	NR
Word Meaning	.34	.38	.25
Listening	.30	.25	.36
Matching	.47	.57	.57
Alphabet	.56	.66	.67
Numbers	.55	.62	.66
Copying	.52	.60	.62
MRT TOTAL	.61	.70	.71
Teaching Ratings	.62	.52	.58

[a] All correlations significant at *p* < .05.

at .40. In either case, the BSSI subscales do correlate highly with the MRT and teacher ratings.

Predictive validity data was also collected by White (1973). She correlated preschool teachers BSSI ratings for 90 children and first grade teachers ratings. She obtained _r_ = .46 for Basic Information, _r_ = .64 for Reading Readiness, and _r_ = .71 for Number Readiness.

As stated earlier, the BSSI is an informal assessment device, intended to be used by classroom teachers. For use in the present evaluation, it was necessary to write complete item instructions and design materials so that administrative procedures would be consistent across testers. Certain items also had to be deleted or rewritten as they did not meet our testing demands. A description of each subtest follows.

> _Basic Information_. The original subtest contains 11 items. Three items were deleted. "Can the child name any three animals, excluding dog and cat," was deleted as a child's knowledge cannot be assessed in a one or two session test. An item asking the child to differentiate betwen winter, summer and night time scenes was deleted as possibly cuturally biased. Finally, the item asking the child to tell the tester where he lived was eliminated as ambiguous to score. The remaining items all concern "basic information" or world knowledge, such as days of the week, coin, color, and shape names, etc.
>
> _Reading Readiness_. We retained four of the original twelve items. All items concerning auditory discrimination (five items) were eliminated due to the difficulties in assessing correct responses among children who speak different languages or dialects. Three other items were deleted as they were difficult to assess in one session (i.e., determine the child's sight vocabulary) or difficult to score. The remaining items all concern skills known to relate to reading achievement, including knowledge of the alphabet, word matching and an awareness of proper left to right sequence.
>
> _Number Readiness_. Of the original 11 items, 6 were retained. Four concern counting and/or numeration; one concerns first, second, third sequencing and one concerns verbal comparativeness (more/less, etc.). The eliminated items were deemed redundant with other items in the battery.

Preschool Interpersonal Problem Solving Test

The PIPS was the only measure of social skills we reviewed in depth. Examinations of other tests quickly showed that the PIPS is clearly the most well-designed and appropriate measure of social skills available. The test is appropriate in that social problem solving ability which the PIPS measures

> "has perhaps the clearest relation to what is commonly thought of as social competence, and is integral to Bronson's definition of social executive skills, which she saw as 'the ability to control and direct oneself adequately and constructively in social situations and the ability to influence others effectively in socially approved ways.' (1975). It does not imply mere compliance, but rather the effective use of coping strategies. A member of the High/Scope PDC Advisory Panel, Charles Billings, stressed the importance of this category, emphasiing that the child's learning to control his or her environment and to influence others was an essential component of social competence and a necessary precursor to the development of social and political power, the knowledgeable use of which are vital for effective functioning in a democracy." (Love, Wacker, & Meece, 1975, p.23)

The PIPS was designed to test a child's ability to solve real life problems. The instrument is included here as it fulfills the need for a measure of problem solving and also provides us with some information on the child's social skills. Although the original test has two parts, one involving ways for a child to obtain a toy from another child and the other concerning ways to avoid mother's anger when the child has broken something, only the child's toy situation was used here. The original test is far too long for our needs and for the attention span of the children in this investigation. Also, according to the Rand report, the first half of the test "is eminantly suited for assessing the exent to which Head Start increases prosocial behavior alternatives." (Raisen, et.al., 1974). Responses are scored according both to the number of solutions the child offers to a problem as well as the total number of different soution categories.

The difficulty with many measures of social skills (other than observational measures) is that they may actually assess the child's test taking skills or level of intellectual functioning, rather than social skills. An earlier study by Shure, Spivak and Jaeqer (1971) found evidence that this is not true of the PIPS. They collected data on both the classroom behavior and PIPS performance of 62 four-year old Head Start children. They found that, regardless of sex and intellectual functioning, "those who are better adjusted in social behavior as measured are those who can conceptualize the greater variety of ways to handle interpersonal problems." (p.1799) Also, although the two behavioral groups (labeled "aberrant" and "nonabberant") differed significantly in the total number of solutions given on the PIPS, there was no difference between the two groups in mean IQ, as measured by the Peabody Picture of Vocabulary Test.

CHAPTER FOUR

Fall Test Battery

The Pilot Test data were examined primarily to eliminate tests and/or items which the testers found problematic to administer as well as to calculate p values for proper ordering of items within tests. Budget constraints prevented further analysis prior to finalizing plans for the fall test battery. At the time these decisions were being made, it also became necessary to consider reducing the size of the battery for budget purposes. The pilot battery required two 30 to 45 minute sessions to administer. In mid-July, the decision was made to reduce the battery so that it could be administered within one 45 to 60 minute session, with play breaks during the session.

Test and Item Modifications

Most item modifications were minor administrative changes which will not be discussed here; the Fall Battery Test Booklet (Appendix E) contains all changes. Two items in the pilot battery used multiple stimuli; the resulting data, as well as testers' reports, were used to make decisions on which stimuli to use in the fall battery. Specifically, Reading Readiness, Item 3, asks the child to place three cards in sequence after seeing an example completed by the tester. One of two card sequences were used (one sequence depicted an apple whole, half eaten, and as a core: the second sequence was of a glass of water being poured). The pouring sequence was discarded as it was somewhat ambiguous and the apple sequence retained. In Pictorial Memory, the child is shown a set of six pictures and then asked to recall them. There was some question about the cultural relevance of the six pictures contained in the original MSCA version.

Three sets were designed and used in the pilot version. The data were examined in order to select six (out of the 18) pictures, all of which had been recalled about 50 percent of the time. The resulting set is listed in Pictorial Memory in Appendix E.

Other changes, which did not involve changed materials, include reverting back to McCarthy's original version (rather than High/Scope's) for Verbal Fluency. The Fall Battery categories include things to eat, animals, things to wear, and things to ride. During the Pilot Test, we found that people's names and toys were very difficult to score. Names vary greatly by cultural groups; nearly any object could be considered a toy by a child.

The scoring of Item 2 (build the chair) of Block Building was modified to make scoring of it equivalent to Item 3 (four-block building). Finally, Item 6 (print numbers) was deleted from Number Readiness as there was considerable doubt that such a skill is considered approrpiate for the Head Start curriculum.

The other major changes are deletions of entire tests. Imitative Action was eliminated on the basis of minimal information yield. It was clearly too easy. It had originally been included primarily as a brief play break; we determined that it was not necessary as such. The story (Part Two of Verbal Memory) was eliminated for the following reasons: (1) to shorten the battery, (2) it proved too difficult and therefore discouraging for many children, and (3) testers found it difficult, if not impossible, to accurately record the child's response verbatim. Leg Coordination and Arm Coordination were eliminated as the assessment of gross motor skills were felt to be less important than the assessment of preacademic skills. These two tests also required considerable time, equipment, and training of testers. The resulting data would not be sufficiently valuable to offset the costs of collecting them.

Finally Opposite Analogies was deleted as many of the items were judged to be poorly designed, specifically the last three (Numbers 7, 8 and 9). Also, all elements relevant to Opposite Analogies are covered by other tests in the Fall Battery.

These deleted tests are also the only MCSA subtests on which black-white differences were found by Kaufman and Kaufman 1973 (see Table 8). The resulting battery is as culturally "clean" as possible without further pilot testing.

A note must be made concerning the inclusion of Conceptual Grouping in the battery. High/Scope found this test unacceptable in their PDC evaluation in terms of reliability (internal consistency) for both English and Spanish-speaking children. (Granville et.al., 1976) However, the High/Scope sample size for this test was very small (n = 92) for this measure. The measure does seem sufficiently valuable to include here despite the High/Scope decision.

Three-Year Old Battery

Discussion with the testers also reveal that the three-year olds they tested in the pilot effort have considerable difficulty with certain items as well as the attention span problems. The battery was shortened for three-year olds: Reading Readiness was entirely eliminated, as very few three-year olds were successful on any items: and only the first items of Number Readiness were retained for these children. The result of these changes is that there are no items requiring letter or number knowledge in the three-year old battery.

Assessment of Language Dominance

Procedures to select an instrument to assess language dominance of bilingual children were very similar to those followed to select the rest of the battery. The criteria were somewhat different, however, and no language dominance measures were used in the PilotTest. Table 4.1 contains a list of the eight measures considered, as well as a summary of the data on each.

TABLE 4.1

Review of Measures of Language Dominance

LANGUAGE DOMINANCE

Test Name	Target Groups		Length of Test	Criterion Grades [2]			
	Ethicity	Age		Measurement Validity	Examinee Appropriateness	Technical Excellence	Administrative Usability
Bilingual Syntax Measure	Mexican-American, Cuban, Puerto Rican[1]	Grades K - 2	10 min.	P	G	P	F
Crane Oral Dominance Test	Mexican-American, Cuban, Puerto Rican	Grades K - 3	20 min.	--	--	--	--
James Language Dominance Test	Mexican-American[1]	Grades K - 1	7-10 min.	F	G	F	F
Language Dominance Criteria	Unspecified other than Spanish-speaking [1]	Grades K - 1	10-15 min.	P	F	P	P
Oral Language Dominance Measure	Unspecified other than Spanish-speaking[1]	Grades K - 3	14 min.	P	G	P	P
The Pictorial Test of Biligualism and Language Dominance	Unspecified other than Spanish-speaking	Ages 4 - 8	Part I-15 min. (vocabulary) Part II (describe picture)-unspecified (10 min.)	F/P	G/F	F/P	F/P
Spanish/English Dominance Assessment	Unspecified other than Spanish-speaking[1]	Grades 1 - 2	10 min.	--	--	--	--
Test of Language Dominance (TOLD) Spanish Version	Mexican-American	Grades K - 2	25 min.	--	--	--	--

TABLE 4.1 (Continued)

Review of Measures of Language Dominance

LANGUAGE DOMINANCE

Test Name	Psychometric Variables			Comments
	Validity	Reliability	Norms	
Bilingual Syntax Measure	Construct validity supported by evidence that the BSM classifications reflect the relationships expected to be found among bilingual children.	Test-retest (Kappa coefficient) = .62 for BMS-E; .64 for BMS-S. Interrater (Kappa) = .78 and .64	Norms on 2300 English-speaking and 2000 Spanish-speaking children are available from publisher	Assesses syntax. Authors' scoring method scores "Black English" as ungrammatical.
Crane Oral Dominance Test	Author cities a predictive validity coefficient of .87	Author cites odd-even reliability of .86	None	Assesses vocabulary only. Reviewers felt that test might be too taxing for 4 year olds.[3]
James Language Dominance Test	Data somewhat unclear. Content and construct validity judged good; concurrent and predictive, poor[2]	Test-retest for 1st graders (approximately 100) over 6 months - Classifications were in 98% agreement.	Based on 464 Mexica American children in Texas	Provisions are made for possible dialetal or phonological variables. Scored for comprehension and production.
Language Dominance Criteria	No data	No data	No data	Accurate scoring requires a bilingual person trained in linguistics.[3]
Oral Language Dominance Measure	No data	No stats. Test has been used for 3 years in grades K-3 in El Paso school system; claimed to yield reliable results.	No data	Scored on language structure.
The Pictorial Test of Biligualism and Language Dominance	High concurrent validity for English scores, low for Spanish scores (vocabulary). Correlations of teacher ratings and scores on Part I-.52 Spanish .85 English.	Odd-even reliability-.85 English, .89 Spanish; Test-retest reliabilities high for 2 mos. - .69-.96 lower over 6 mos. - .35-.82	Part I: 468 Mexican-American children, preschool-2nd grade. All from south Texas. Part II - n=200	Scored on vocabulary, grammar, and thought completion. Requires some subjective judgments.
Spanish/English Dominance Assessment	No data	No data	No data	Two people needed to administer test.
Test of Language Dominance (TOLD) Spanish Version	No stats, but items selected on basis of item analysis from existing instruments.	Based on n of 96. KR-20 for items presented in English = .82. KR-20 for items presented in Spanish = 96	No data	Assess primarily vocabulary.

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[1] in addition to English-speaking groups.

[2] Oral language tests for bilingual students

[3] A guide to assessment instruments for limited English-Speaking students.

It is essential that any test of language dominance be culture fair both in terms of content and scoring of syntax. In terms of the present evaluation, this means that the test must be appropriate for Spanish-speaking children in California, Texas, New Mexico and Chicago. Several measures were questionable or clearly did not meet this criteria. The test must be reasonably short for reasons given earlier. The test should also assess language structure, not just vocabulary. Finally, the test should preferably be administered to both English and Spanish-speaking groups, to equate the batteries.

The only test meeting these criteria is the Bilingual Syntax Measure (BSM) (Burt, Dulay, and Hernandez, 1975). The BSM was successfully used by High/Scope in the PDC evaluation with four to eight year olds. The BSM measures child's oral proficiency in English and/or Spanish.

Although we expect to use the BSM in the Fall Battery, it will be used selectively as we find the published scoring methods unacceptable. The authors' method scores Black English as ungrammatical. We plan to design our own scoring procedures with the aid of linguists from appropriate fields of study. Once our scoring procedure is complete, the BSM could be used as a measure of level of syntax development for all children in the evaluation.

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APPENDIX A

Concept Paper

Design for Precursor Assessment of Reading/Writing Skills

Author: Robert C. Calfee

OFFICE MEMORANDUM • STANFORD UNIVERSITY • OFFICE MEMORAND

DATE: January 5, 1979

TO : Jacelyn Wedell-Monnig, Deputy Project Director
Head Start, Basic Educational Skills Evaluation
National Testing Service
FROM : Robert C. Calfee, Stanford University
School of Education

SUBJECT: Design for Precursor Assessment of Reading/Writing Skills

Here is my analysis and my recommendations for the design of the reading/writing skill assessment for your project on National Evaluation of Head Start Educational Services and Basic Educational Skills Initiative. The breadth of this analysis may be greater than suits your need at present. I've concerned myself not only with the design of the precursor assessment, but have considered the broader question of assessment of reading/writing skills as well. If this document is not quite on target, give me a phone call or drop me a line and I'll try to bring it more nearly in line with your needs. I thought it would be best to give you a draft paper for comment, rather than adding lots of bells and whistles without knowing whether I was on target.

The paper is organized into six sections:

1. Presumed criteria and assumptions of the Head Start Basic Skills Curriculum, and the desired characteristics of the assessment system for your evaluation. I thought it well to review what I think is your starting point to ensure that we share the same perspective.

2. Background and limitations of my recommendations.

3. General considerations for assessment of basic skills in reading and writing.

4. Brief review of available instruments and instrumentation of previous Head Start evaluations.

5. Proposal for a process of building the NTS Reading/Writing Assessment System.

6. Specific recommendations for the NTS Reading/Writing Assessment System for precursor skills.

Section 1: Presumed Criteria and Assumptions of the Head Start Educational Services and Basic Educational Skills Initiative.

The first sentence in your technical proposal seems to me to be the key for the design for the entire evaluation, and in particular the design of the assessment systems. The assessment system must have enough specificity to allow one to "identify common elements of Head Start Programs, Basic Educational Skills Programs, and Control Environments which foster the development of children and meet the needs of parents. (NTS page 1.1)" Another key phrase in my opinion is the statement that "the BES program proposes to establish continuity between Head Start and the public schools... this is not to be interpreted as an attempt to make preschool education take on more of the character of elementary schools (NTS page 1.3)." Finally, there is the stated goal of linking the actual program elements (as implemented) to the relevant student and parent outcomes. This goal is one of the special features of the proposal (NTS page 1.5) which strikes me as most noteworthy.

The proposals in this memorandum are also guided in part by the guidelines prepared by Dr. J. W. Klein. Here are some of the key phrases in the guidelines which strike me as important for my task. First is the general statement of the Head Start goal as "bringing about a degree of social competence in children of low income families-- social competence means, among other things the child's everyday effectiveness in dealing with both present environment and later responsibilities in school and life including cognitive and intellectual development, physical and mental health, appropriate levels of language comprehension and communication skills, beginnings of recognition of letters and words, acquisition of specific information about the world, and development of learning attitudes such as focused attention, task persistance, curiosity and a positive attitude toward learning. (Klein, page 2)" In Appendix A of the guidelines, Klein mentions a number of other language and reading/writing skills--"oral language acquisition and competence, language comprehension, communication, increased vocabulary, word fluency, auditory discrimination and listening skills, recognition that writing carries a relevant message and can be used to create messages, an awareness of language structure at the phonetic and grammatical level, a refined visual perception capability for printed materials and phonetic analysis, and beginning recognition of the symbols designated words." At the preschool level, it is difficult if not impossible to totally separate the skills of oral language development from the prereading and prewriting skills that are important to the development of competence in reading and writing, and I will not make any strong effort to draw this distinction in this paper. I will also propose a somewhat different way of organizing the skills of language and reading and writing, but my proposal will include all of the outcomes listed in the Klein paper.

The Head Start program is designed for children between the ages of 3 and 5 from disadvantaged families--we assume that these children have had little exposure to testing procedures, either individual or group. In addition, the children are likely to come from a variety of cultural and linguistic backgrounds--apart from the matter of norms, this means that the tests must be adaptable to these variations. The final test battery must fit within some reasonable construct framework, must be simple enough for administration by a paraprofessional tester, and must require testing time of no more than an hour or two per child over the course of an academic year (NTS, page 2.59). Efficiency is obviously of great importance in the design of the assessment system--it is also required that the instruments have high generalizability, and it is also desirable to meet both psychometric and edumetric standards. In short, NTS is seeking to achieve both broad band width and high fidelity in the instruments (Cronbach, 1970). Finally, the proposal calls for little or no test construction, the emphasis being on efficient use of available instruments.

I see this as an interesting challenge in test design, though by no means an impossible one.

Section 2: My Perspective, and Limitations of My Proposal

My reservations about the usual test construction procedures are described in other papers, which I have shared with NTS--I have also attached a couple of relevant papers for review by the Head Start/BES Evaluation Staff. As I read the proposal, I find remarks at many places that suggest a compatibility between my position and those of the proposal. The most succinct remark is on page 2.61--"while the educational field grasped the idea of environmental influence and individual growth, still the psychometricians focused on measures that show stability, which has so often been erroneously equated with reliability."

My approach to this problem will stress a coherent design that encompasses all components--program, students, teachers, implementation, passage of time, inter alia. The remarks in this proposal will focus on the assessment system, but I would hope for an opportunity for dialogue to tie in the other components. I think that it is especially important for the observational system to mesh with the assessment system--the statement on the bottom of page 2.11 suggests that this is consistent with NTS goals (also cf page 2.5). Parenthetically, it might be very interesting to test teachers on their knowledge and attitude about various aspects of the program. Current texts on the education of the young child take a variety of stances: What is the match of the teacher's predisposition, training, and the goals of the program? This question is of general interest, but it also bears on the design of the assessment system. For instance, if one examines texts like Evans (1975), Frost and Kissinger (1976), Hess and Croft (1972), and Fein and Clark-Stewart (1973)--and many others might be listed, of course--one would arrive at very different philosophies and practices for the assessment of children in day care and kindergarten programs. I assume that the assessment system is going to have to be reviewed by teachers and make sense to them, so their background is quite relevant to the success of the assessment efforts.

This paper will present a process for creation of a reading/writing assessment system. This process begins with the specification of a test design, and a method of aggregating items from existing item banks to fit the needs of the design. The development of the design is rather critical. Once the design is specified, then it should be possible to select, modify and (in a few instances) create items for the cells of the design. I also propose that we supplement the testing with the collection of ancellary behavioral data of the child's responses to testing, so that as much data is collected as possible during the testing--not simply whether the child is right or wrong, but how he approaches the task, and so on.

National Testing Service may feel that this approach is neither feasible nor desirable, or that it is too risky. It is certainly a departure from previous evaluations, which tended to rely on a choice of complete test packages, and which followed more of a grab bag approach rather than using a design.

In preparing this memorandum, I have had time to do little more than sketch this process and suggest a design. The actual creation of a test design and the selection of items would probably take two or three days, assuming that it would be possible for me to spend this time working directly with the NTS staff. I have carried out similar work earlier with Educational Testing Service, so I know that the process is workable. Let me stress that I see my job as being primarily to give practical guidance in the development of the assessment system--however, I also feel bound to recommend a defensible conceptualization of the assessment system.

Section 3: General Considerations in Design of Assessment Package for Reading/Writing Skills.

It is useful to keep in mind during the design of the package the different purposes that may need to be served by the system:

1. As a measure of the starting point or precurer level of performance of the students.

2. As a measure of response to the curriculum.

3. As a measure of transfer to new situations and new instructional opportunities.

While the test to be used in the precursor phase should be designed with that purpose in mind, it is likley that either the same test or tests very similar will be used for the other purposes. The matter of transfer is especially important. The Head Start/Basic Educational Skills Project is designed not as a "watered down kindergarten-first grade program," but as a foundation program that would develop learning skills and strategies useful to the child on entry to school.

Other considerations that I consider of significance in the design of an assessment system can be summarized from earlier writings on this topic:

Criteria for Evaluating Tests

We want to examine briefly several criteria for evaluating tests: *reliability*, *validity*, *appropriateness*, *independence*, *discriminability*, *cost*, and *repeatability*. The first two are usually discussed in texts on testing, the others generally not (e.g., Anastasi, 1968; Cronbach, 1970; Farr & Tuinman, 1972). Each criterion has several facets to it.

Reliability: Does the Instrument Provide a Consistent Measure?

In general, reliability refers to the degree to which a measurement is consistent. We can consider the consistency in performance when a person is tested with one form of a test and then retested with a slightly varied form. Several things have changed. The exact form and content of the test have changed. The student has probably changed. He may have learned something, he may have forgotten something, he may have a headache now that he didn't have earlier. All these sources of variability tend to reduce the reliability in test-retest situations.

Test developers tend to emphasize *within-test* reliability. This provides a measure of the extent to which each item contributes consistently to the total test score.

Maximizing intratest reliability is important when the test score is to serve for a major decision, but it may be counterproductive for instructional decision-making.

Validity: Does the Instrument Measure What It's Supposed to?

As with reliability, the concept of validity assumes many guises. Face validity means that the test looks like it measures what ought to be tested. Construct validity means that if several tests seem to be measuring the same thing, there must be something there to be measured. Predictive validity means that there is a correlation between a test and a criterion of performance (usually another test).

Appropriateness: Does the Instrument Measure Sensibly, Given the Use to Which the Evidence Is to Be Put?

Appropriateness is introduced here as a fuzzy concept covering several related matters. In part, it has to do with whether a test is linked to the goals of an instructional program with sufficient directness and breadth. Researchers learn the meaning of this concept when public school teachers ask why no one tests what they teach. This complaint is fair and deserves the attention of evaluators.

Independence: If Several Skills Are Measured, Is There Evidence That They Are More or Less Separable and Autonomous--Not Closely Correlated?

To be most useful, the several scores from an assessment battery should provide the teacher with distinctive pieces of information. When all the subtest scores are highly intercorrelated, the teacher receives little guidance about distinctive courses of action.

Discriminability: When Possible, Information from a Subtest Should Be "Yes-No."

It takes more expertise and attention to monitor an ammeter and make decisions about an automobile's electric system than to notice simply whether the generator light is on or off. Similarly with a test--when the scores on a test take the form of a normal distribution, then fine gradations in performance matter a lot and interpretation is more difficult. It is much easier to interpret performance when it is either clearly at the mastery level or altogether faulty, with no "in between" scores.

Cost: How Much Time and Money to Buy, Administer, Score, and Interpret?

Tests cost money, and they cost time. These costs may be overlooked by teachers, even when they are the ones who pay. For instance, in one school, teachers spent three days testing the students' reading skills in third and fourth grades. The scores were then used for the sole purpose of sorting students into three reading groups: high, medium, and low. Obtaining a ten-minute oral reading sample from each student would probably have done the sorting job as well, or better, and at much less cost. When a major decision is to be made, substantial cost is justified; when continuous short-term decisions are required, low cost is essential.

Repeatability: For Classroom Instruction--It Should Be Practical to Readminister a Test Whenever the Teacher Needs Information.

The time and cost required by many tests makes repeated administration impractical. Besides this, the psychometric concern with reactivity in retesting leads to advice against repeated administrations of the same form. It is rare to find more than two alternate forms of most commercial tests. For evaluation of a program or an individual, assessment once or twice a year is sufficient. But the teacher or evaluator who wants evidence on the effectiveness of yesterday's instruction needs an "off-the-shelf" test, one which comes in many forms, and can be used as often as necessary.

Let me end this section by stressing two additional points. I think it is especially important to avoid tests that underestimate the children's capability. As I have noted elsewhere, it is easy to find conditions under which a child fails, more difficult to find the conditions that lead to success. As Fein and Clark-Stewart (1973) put it, "the peril facing formal assessment is that children's actual competence may be underestimated. In view of the growing body of analysis and evidence that suggest that language performance is highly sensitive to situations and that lower class children in particular will find typical test situations troublesome, underestimation of language competence may lead to curricula that teach the child what he already knows. Even more serious, perhaps, is the restriction of highly structured programs to fairly narrow aspects of language. The danger is that the overall language environment will remain depriving (page 95)." Related to this point is the need to avoid confounding of constructs and measures (Sroufe, 1970). There is a tendency to think that if we use a test that is labeled an intelligence test, we have measured intelligence; if we have measured prereading or prewriting with one test, that we have measured the skill. In fact, each test represents only one set of conditions (the individual item) out of a large set of potential conditions that together comprise a construct. Within the general constraints of the design to be proposed, where replication of items within a given specified condition is possible, I think that the items should be selected to be as different as possible in their character. Then the kind of information they provide will indeed be generalizable.

Section 4: Brief Review of Available Instruments, and of Instrumentation of Previous Head Start Evaluations.

The instruments available for assessment of reading and writing skills in very young children is discouraging, to say the least. One lack is the absence of any clear theoretical structure for specifying what we mean by prereading and prewriting skills. A second problem is that most of the testing in the three-to-five year age range is individualized. This often means that we lack adequate data on reliability, validity and so on. These characteristics are more typical of the multiple-choice tests that are used with huge numbers of children in testing achievement and other skills at later ages. There are not very many tests for the purposes of this evaluation, those that exist are uncertain in character, and there is very little in the way of available technical data.

I will mention only three sources of information that support the statements above. One is the most recent Mental Measurements Yearbook. Interestingly, no tests of writing are reviewed anywhere in the yearbook. There are a number of reading tests, but none of these are appropriate for young children. In the readiness section of the yearbook, a number of tests are described which come close to fitting the age range. Most of them are relatively expensive in both time and money, given the information that is available. Virtually all are multiple-choice, and concentrate on visual discrimination, auditory discrimination (of some sort or another), and vocabulary testing. A number of these might be useful sources of items for testing the upper levels in the children's performance on reading readiness--in any event, these tests are the ones that determine whether the first grader will be a blue jay, a cardinal, or a robin, and hence should be kept in mind as measures of transfer.

Another source of information about preschool and kindergarten tests is the test evaluation carried out by the Center for the Study of Evaluation at UCLA, 1971. The document is perhaps out of date: I suspect the situation has not changed greatly in the last several years. The CSE document provides a taxonomy of preschool tests, of which at least six areas are of potential importance in reading and writing (see following page). The labeling, organization and definition of these areas shows the problem that arises when there is no theoretical guidance. The definitions tend to be narrow for the broad labels. It is not clear how one chooses to place a particular test in one or another of these areas in many instances. For instance, a large number of reading readiness tests and reading tests are listed under 16.b--visual discrimination and recognition. One might as well call this reading, recognition of word meanings, or even attention.

Whatever the case, things are even more discouraging when you look at the actual evaluations themselves. The CSE booklet is divided into two parts, one for preschoolers and the other for kindergartners. Virtually all the preschool tests fail to meet the usual standards of technical excellence, and there are simply no tests of reading or writing skills per se, either in preschool or (with few exceptions) in kindergarten. There are special lacks in the area of receptive or productive comprehension, which may be amongst the more important prereading skills. No one seems to have conceived of what prewriting skills might include--I will have some proposals to make in this regard in a later section.

The UCLA report is somewhat discouraging, but it does serve as a ready reference for sources of tests, and I will make some recommendations from this list in the last section.

The third source is the collection by O. G. Johnson (1976). This is a relatively comprehensive if not very profound compendium. Several interesting items are presented in Section 6.

Turning next to the instruments used in wide-scale evaluations, again the situation is not very promising. Previous Head Start and day care evaluations have tended to use rather idiosyncratic grab bags of the available tests. There has been an especially strong reliance on the Stanford Binet, other tests are used from time to time (see Table 8.2 from Day and Parker, 1977 for an example). As Day and Parker point out, "the measures often do not relate to the treatment... there should be a clear relation between the activities in a curriculum and the measures used to evaluate the program. (Page 2.11)" The problem is not a lack of instruments being used. For instance, consider the rather extensive instrumentation used in the evaluation of four preschool programs by Miller and Dyer (1975), and shown in Table 7 of their report. No indication is given of the total testing time required by this battery, but it must be several hours in length. Nor is there any effort to evaluate the relationship between testing time and the amount of information--one suspects that the measures were highly intercorrelated, but there was no report of the degree of independence of the various tests.

The NTS evaluation seems oriented toward a more systematic and efficient testing battery. If there is to be a link to evaluation and assessment plans used in earlier studies, it seems to me that one must hope that item data are available from these programs. Otherwise, the total testing time available in this project will be taken up by one or two test packages, almost certainly failing to meet the other criteria for the assessment system.

The review by Kamii and Cazden in the Bloom, Hastings and Madaus Handbook provide two different perspectives on early education assessment--the Cazden suggestions about language assessment could be used as item sources, though normative data are not available.

Day and Parker, 1977

TABLE 8.2
CROSS TABULATION OF MEASURES OF CHILDREN, PARENTS, AND TEACHERS BY PROGRAM

MEASURES OF CHILDREN	GORDON	KARNES	LALLY	LEVENSTEIN	NIMNICHT	PALMER	SCHAEFER
Cognitive and Language							
Griffith	✓						
Bayley	✓						
Stanford-Binet –	✓	✓	✓	✓		✓	✓
Leiter	✓						
Cattell			✓	✓			
PPVT –	✓			✓		✓	✓
WIPPSI						✓	
Johns Hopkins Perceptual Test							✓
ITPA		✓	✓				
Preschool Preposition Test							✓
Preschool Inventory	✓		✓				
Boehm Test of Basic Concepts			✓				
Wide Range Achievement Test			✓				
Metropolitan Reading Readiness Test			✓				
Measure Developed for Project	✓		✓	✓		✓	✓
Social and Emotional							
Bayley Infant Behavior Record			✓				✓
Cornell University Record of Infant Activity & Environment			✓				
Emmerich Observational Ratings			✓				
Beller Autonomous Achievement Striving Scales			✓				
Schaefer Classroom Behavior Inventory/Checklist			✓				
Coopersmith Behavioral Rating Form			✓				
Measures Developed for Project							
Measures of Parents	✓		✓		✓		
Measures of Teachers			✓	✓			

Miller and Dyer, 1975

TABLE 7

TESTS ADMINISTERED AT PREKINDERGARTEN, KINDERGARTEN, FIRST AND SECOND GRADES

Prekindergarten	Kindergarten	First Grade	Second Grade
Stanford-Binet[a]	Stanford-Binet	Stanford-Binet	Stanford-Binet
Dog and Bone[b]	Dog and Bone	Dog and Bone	Dog and Bone
Replacement Puzzle[b]	Replacement Puzzle	Replacement Puzzle	Replacement Puzzle
Curiosity Box[b]	Curiosity Box	Curiosity Box	Curiosity Box
Parallel Sentence Production[c]	Parallel Sentence Production	Parallel Sentence Production	Parallel Sentence Production
Behavior Inventory[d]	Behavior Inventory	Behavior Inventory	Behavior Inventory
Face Sheet of Stanford-Binet[d]	Face Sheet of Stanford-Binet	Face Sheet of Stanford-Binet	Face Sheet of Stanford-Binet
Basic Concept Inventory[e]	Basic Concept Inventory	Basic Concept Inventory	California Achievement Test—Level 1
Embedded Figures[b]	Embedded Figures	California Achievement Test—Level 1[f]	
Preschool Inventory[g]	Preschool Inventory		
Arithmetic[h]	Arithmetic		
Expressive Vocabulary Inventory[c]	Metropolitan Readiness Test[i]		
Peabody Picture Vocabulary Test[j]			

[a] Houghton Mifflin Co., 666 Miami Circle, N.E., Atlanta, Georgia 30324.
[b] Banta 1970.
[c] Stern 1968.
[d] Hess, Kramer, Slaughter, Torney, Berry, & Hull 1966.
[e] Follett Educational Corp., 1010 West Washington Blvd., Chicago, Illinois 60607.
[f] California Test Bureau, Del Monte Research Park, Monterey, California 93940.
[g] Educational Testing Services, Princeton, New Jersey 08540.
[h] Limited quantities available from senior author on request.
[i] Harcourt Brace & World, Inc., 757 Third Avenue, New York, New York 10017.
[j] American Guidance Service, Inc., Publishers Building, Circle Pines, Minnesota 55014.

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Section 5: Considerations For Design of the NTS Reading/Writing Assessment System

I would propose that the process for building the reading/writing assessment system begin with a test design, followed by a sorting of items from available item banks into the cells of the design, then organized into a two or three layered test administration-system. Let me talk about each of these points in turn.

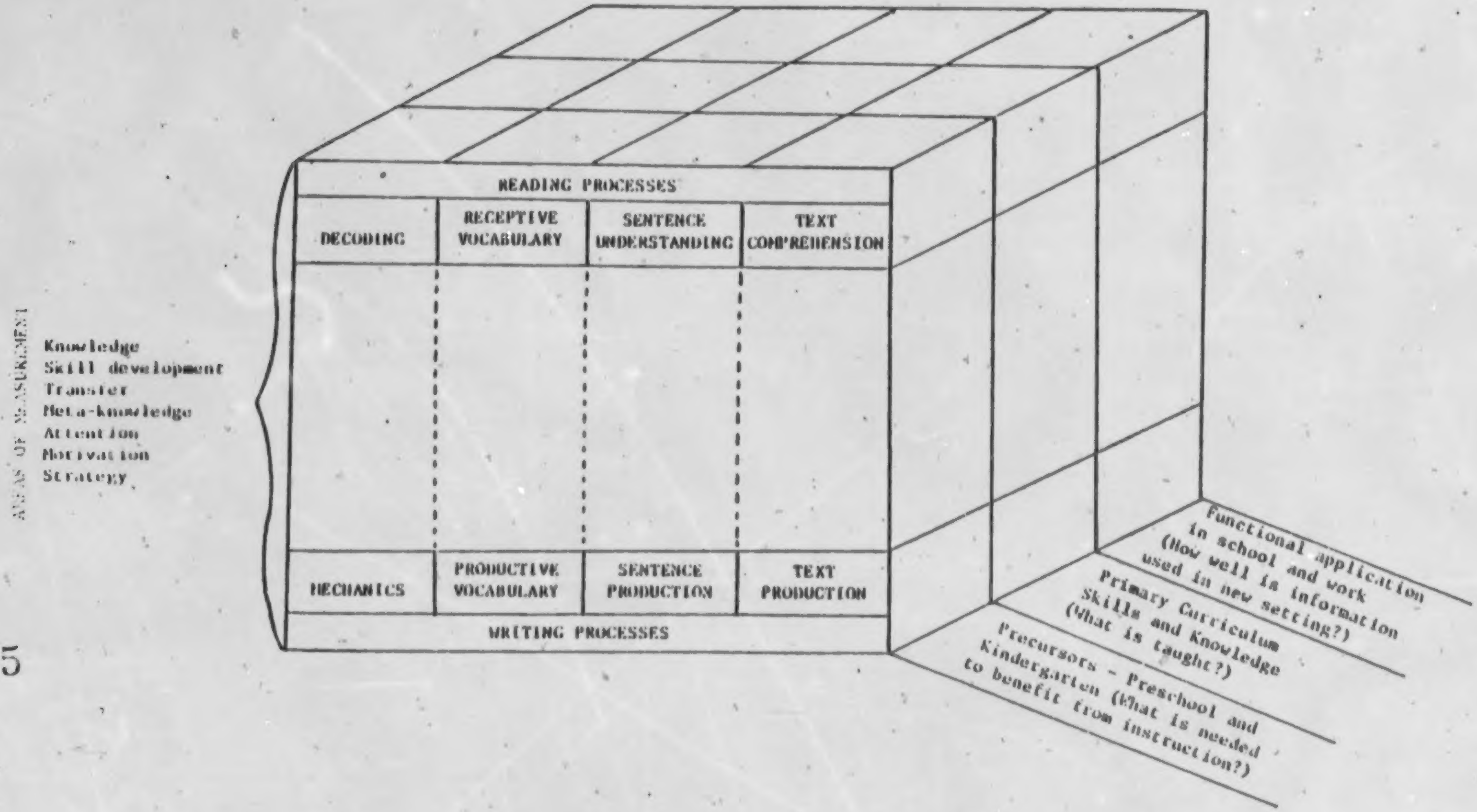
In Table 5.1 is a general design for the reading and writing tests. For simplicity, I am assuming that reading and writing are largely inverse processes. This is not entirely true, but it's close enough for our purposes. I have not broken down the basic processes of reading and writing into specific facets in this section--that will be done in the last section of this memorandum. Neither am I assuming anything about priority or sequential order of the processes. That is, I'm not saying that decoding is more important than vocabulary, or should be taught prior to it; there is no implication that one needs to teach the mechanics of writing prior to the techniques of organizing the text--I suspect that the reverse might be preferable. Finally, these are the processes of chief importance in the first and second grade curriculum in reading. For each of these processes, complete analysis would ask about specific precursor skills, the specific facets that make up the elements of the curriculum in that process area, and the transfer of these facets once learned to functional application in school and work. More will be said about these components in the last section.

In the lefthand column are various aspects of each process which might merit measurement. For instance, it is typical to measure either knowledge or skill development in a relatively static fashion. It is less common to measure response to instruction--this would mean measuring the student's level of knowledge or skill, carrying out some instruction, and the remeasuring to see what the rate of change was. The extent to which currently available tests measure transfer is hard to tell. On the one hand, most standardized achievement tests (and more generally) most multiple-choice, group administered tests) can be viewed as a kind of transfer task. Some curriculum programs evaluate instruction by a group-administered multiple-choice format, but much instruction is not of this character. In any event, the typical test does not measure transfer in any systematic fashion. There is a change in the task, but the materials and procedures are fairly similar to those of the instructional program.

Metaknowledge refers to measurement of the child's conscious awareness of the principles and concepts of what has been learned. In a sense, this is another approach to measuring transfer, but it is significant enough in its own right to merit attention. For instance, one might teach a child decoding skills by presenting lots of examples, without ever mentioning the principles involved. A test of metaknowledge would ask the child to try and talk about what he thought the system of letter-sound correspondence was about.

Table 5.1

Design of Reading/Writing Assessment System
for Head Start/Basic Educational Services



Attention and motivation are part of what might be a lengthy list of behavioral concomitants of test performance. The elements in the list might include style and persistence--we do not have a good theory of the contextual aspects to performance to help us know precisely what labels to use and how to measure them. However, it is clear from the guidelines and from the intention in the proposal that some effort is to be made to measure these contextual aspects of performance in the present testing system. Notice that I have not proposed these as separate processes independent of the various reading processes. These are each general characteristics of behavior that cut across all of the processes in reading and writing, and in my opinion should be assessed in the context of performance on each of these processes. A child might be highly attentive (in several meanings of the word) in handling certain tasks and not in others. It has been more typical to try and obtain general measures of attention and motivation apart from the context of specific processes of reading and writing. I don't think the literature is very convincing as to the wisdom of the assumption that there are general levels of attention and motivation, which can be measured separately. In any event, it would make sense to carry out measurement of these various aspects of performance while the child is undergoing testing in order to test this assumption.

Once this design has been completed by the specification of particular facets to be suggested in the next section, the next task is to review the items available in existing tests as to their appropriateness for inclusion as precursor or as kindergarten-first grade curriculum items. Notice that I am not proposing a level of the design for items fitting the Head Start curriculum. I suspect that the big break is between Head Start and formal reading instruction, so that the precursor items will also be appropriate for measuring program impact in Head Start.

Once the items have been sorted out into the various cells of the design, then we will have some idea of how adequate the existing item pool is for achieving the design requirements. I am not pessimistic about the prospects of success. I think it will require some imagination in the scanning of the test literature, as well as the research literature. For instance, I suspect that much of what we might want to measure under sentence understanding and text comprehension for both reading and writing will be found in the research literature, largely in studies where children are told stories and asked for recall, or asked to create stories on their own.* To be sure, the research studies may provide inadequate norm data on the proper populations. At the very least, if NTS decides to disregard certain parts of the design because of the unavailability of adequate instruments, at least this will be done with full knowledge, and not through lack of forethought.

The results of this activity, if successful, will be a large battery of items, organized into a design along the lines shown in 5.1, with some idea of the modifications for each item needed to measure the various aspects shown to the left in the table. Hopefully, item data for relevant ages will be available for most of these items.

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*See Appendix G

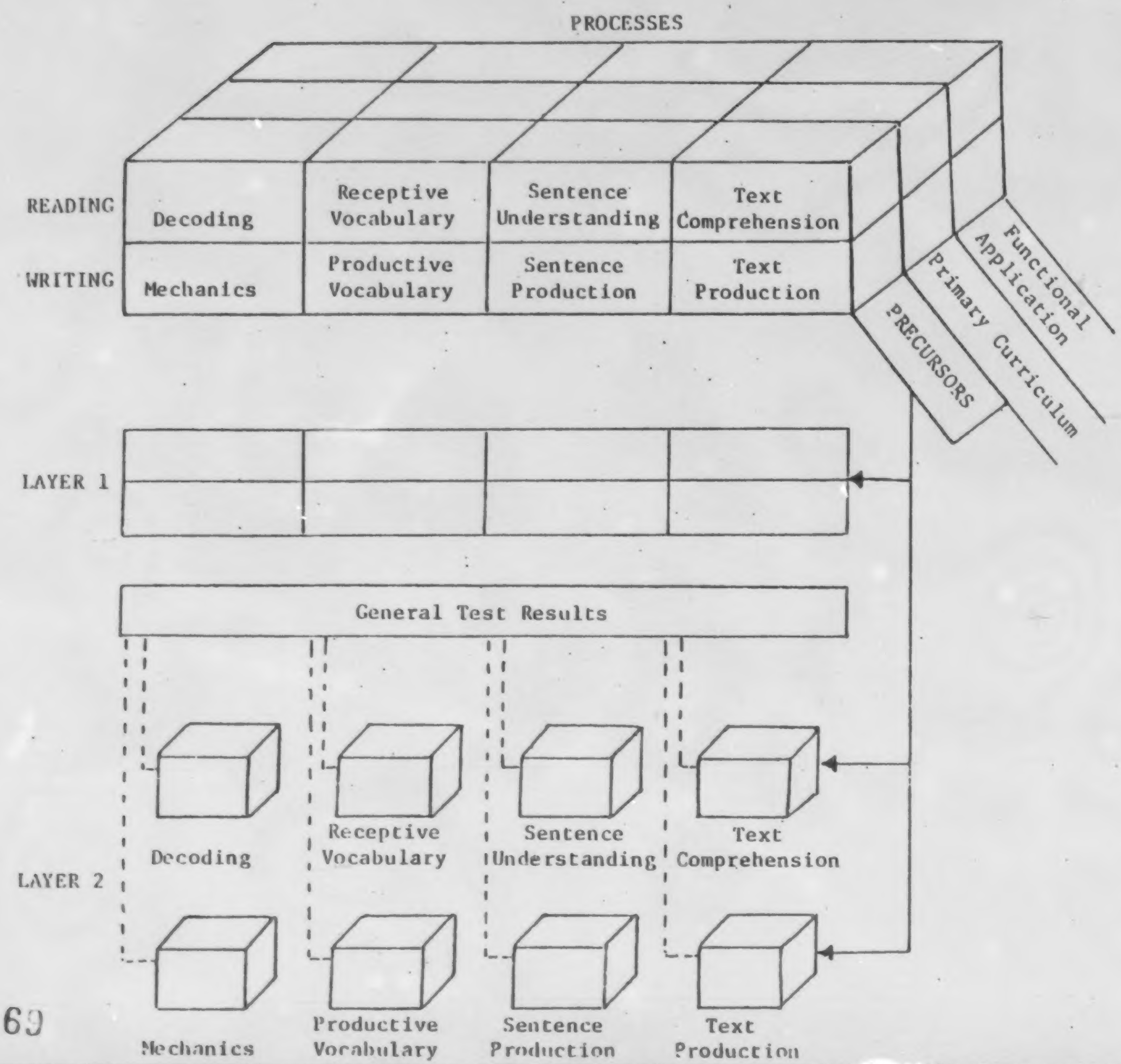
I then propose the creation, for preliminary evaluation, of two layers of testing (Table 5.2). The first layer would be designed to measure very crudely the level of performance for typical students on each of the facets in Table 5.1. The purpose of this layer of the assessment is not to obtain information about the individual child, but about the program. Hence, we do not need a refined measure for the individual. Accordingly, in the measurement of decoding precursors, we might select three or four relevant items (their exact makeup will be discussed in more detail in the next section) selected to represent wide variations in vast requirements, materials and difficulty. Similarly, a small number of items would be selected to measure receptive vocabulary, sentence understanding, and so on. The goal is to create a test that takes no more than half an hour or so to administer, highly variable in its makeup, and maximally informative in terms of the domain of skills being measured. At this layer the emphasis in the test is on what Cronbach refers to as bandwidth--there is no concern with fidelity. I would recommend creation of two-to-four different versions of this test--these are not alternate forms in the usual sense, but are closer in character to what is known as matrix sampling.

The second layer of testing will comprise a series of tests, each focusing on one or another of the processes, and designed for a rather intensive examination of that process. The test at this more intensive layer will be designed to explore the reasons for failure of a student when tested at the more general layer. For instance, one could use the results from the general test to select a sample of students who had shown poor levels of performance under one or another of the reading or writing processes for more detailed testing. This approach to the design of the assessment system assumes that there is little need to explore successful performance in great detail--it is failure that deserves explanation.

To: Jacelyn Wudell-Mennig, NIE 1/5/79
From: Robert Calfee, Stanford University
Subject: Design for Precursor Assessment of Reading/Writing Skills

Table 5.2

"Layered" Test Construction from Items in Design Bank



Section 6: Specific Recommendations for the Reading/Writing Assessment System of Precursor Skills

In this section I will discuss the specific facets of each of the processes described in the preceeding section, and list a number of sources of items for the design.

In Table 6.1 are listed the Head Start precursor facets and the kindergarten-first grade curriculum facets which I would propose as important in reading and writing. These are not behavioral objectives, but are areas of skill and competence which are observeable in children's performance in a variety of ways, and are part of the curriculum programs for many day care and primary schools. Though they appear concrete in some respects, they should also be viewed as having the status of constructs within the reading and writing areas--constructs which need considerable refinement and clarification. This is not a test construction project, and so it makes little sense to try and describe in great detail what facets might be considered, and the full array of component skills and knowledge that might characterize each of the major processes. From my knowledge of the curriculum, of the available assessment tools, and of the underlying mental processes, I think the facets listed in the table are probably an adequate starting point. In each case, I have begun with the first-grate curriculum as a central theme--these are the curriculum areas in which the first and second grade reading curriculum aim to help the child achieve mastery. Whatever else may go on in the Head Start basic skills, they certainly should facilitate the child's growth in the primary skills and knowledge listed in the righthand column of the table. (Incidentally, I have made no effort in the table to indicate the conditions of testing of the functional application in school work of these skills--that is a task for later.)

The precursor skills (Head Start and Kindergarten) listed in the left column indicate skills that are needed to benefit from instruction in the components on the right. There is not always a simple relationship between the two columns, though likely relationships are apparent in many instances. Many of the precursor skills build upon oral language fairly directly. However, it is important to follow Olson's guidance--the oral language that the child uses in talking with friends, and to a lesser degree the language of the classroom, both of these differ in significant respects from the language that is found in books, and the language that is used in written communication. In other instances, the precursor skills and knowledge are unlikely to have much direct relation to typically existing language skills, and require focused instruction in order for growth to occur.

On pages 2.57 and 2.58 of the proposal are a number of sources of child outcome measures--I have not gone through all of these papers, but there are a variety of fairly typical instruments reported throughout. Some other sources worth mentioning include the instruments for evaluation of the home based program of the Appalachia Educational Laboratory, the materials recorded by Miller and Dyer (SRCD, 1975) by Palmer and Siegel (in Parker and Day; their item-by-item data on the CFI illustrates the kind of information that would be most useful to the approach I'm recommending for to be carried out). Three of the readiness tests in the Mental Measurements Yearbook would be a source of items (#794, 800 and 803). I have not carried out a careful search, but would recommend reviewing Developmental Psychology and Child Development for research on story recall, and picture description tasks. Both of these would provide some sources of information for testing precursors of reading comprehension and of story production capability. Also listed are several descriptions from Johnson (1976). *

Some of the most interesting "items" may not come packaged as items per se. For instance, analysis of story production and story recall protocols using concepts of story grammar and propositional analysis should reveal some very interesting properties of children's language use. To be sure, we are unlikely to find norms for such tests. Again, additional scoring of vocabulary responses may reveal a great deal of useful information. For instance, Bissell (1973) reports some very interesting results from the Hertzig-Birch scoring of Stanford Binet Vocabulary. The same basic datum (if it is rich in form) can be used in several ways to answer different questions.

Various facets of vocabulary capability are especially important. For instance, Fein and Clark-Stewart (1973) emphasize the interesting distinction between words used as labels for objects, and words used to mediate problem-solving behaviors. These are important in both reading and writing. My suspicion is that unless NTS moves in this direction, it will find relatively sparse pickings in the areas of sentence understanding and text comprehension.

Lastly, I should mention that we have developed two testing systems that are sources of items for this approach. The Stanford Foundation Skills Test measures prereading skills in several areas--this test does have a design, and comes in varying forms suitable for use down to 3-1/2 years of age, it can be administered to small groups as well as to individuals. Second, the Interactive Reading Assessment System, which meshes with the SFST, includes vocabulary and listening comprehension components. Some normative data is available on both of these tests, but they serve more as models than as strongly normed item banks.

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*These and some related materials are described in the Appendices.

APPENDIX B

Concept Paper

Skills and Concepts Preparatory to Formal Schooling on Mathematics

Authors: Joan I. Heller and
Lauren B. Resnick

Skills and Concepts Preparatory to Formal Schooling in Mathematics

Joan I. Heller and Lauren B. Resnick
University of Pittsburgh

Although the importance of early educational experiences for young children has been emphasized in recent years, the nature of those experiences remains a subject of debate among educators and psychologists. Preschool programs have been implemented that reflect the differences in current opinion: programs vary in the organization of the classroom experiences (expressive versus structured), the amount of formal conceptual training, and the theoretical justification for their design (see, for example, descriptions in Day & Parker, 1977). A common assumption of most of these programs, however, is that by virtue of the experiences or environment provided, children will emerge prepared for the learning and thinking demanded in formal educational settings.

Evaluation of preschool programs should, then, be oriented toward determining whether children who have completed the programs, have, in fact, been prepared for entering first grade. Unfortunately, little systematic attention has been given to the precise skills and concepts needed in order for subsequent formal instruction to be effective. The intent of this paper is to delineate a preliminary network of such skills and concepts in the domain of mathematical knowledge.

Analytical Procedure

In preparing this paper we attempted to merge: (1) information about the skills that are prerequisite to, or might facilitate, first grade mathematics learning, with (2) information about what quantitative knowledge preschool-aged children are capable of attaining. First grade curricula, as reflected in mathematics textbooks, were consulted in the determination of prerequisite knowledge. Relevant psychological literature comprised the information source regarding young children's capabilities.

Identification of skills and concepts that are prerequisite to learning first grade arithmetic was accomplished by examining the instructional objectives and teaching activities in five of the most widely used mathematics textbooks (Addison-Wesley's Investigating School Mathematics (1973); Harcourt Brace Jovanovich's Growth in Mathematics (1978); Holt School Mathematics (1978); Scott, Foresman and Company's Mathematics Around Us (1975); and Silver Burdett Mathematics (1973)). "Behavior" or "component" analyses (Gagné, 1962; Gagné et al., 1962; Mechner, 1967; Resnick, 1963) were performed on all of the major classes of instructional objectives and activities called for in first grade. This technique consisted of analyzing, for each activity, what prerequisite behaviors the child must be able to perform in order to perform the target behavior. Each new behavior identified was analyzed again in order to determine what knowledge was prerequisite to the new behavior. These analyses yielded hierarchies of skills based on prerequisite behaviors. These analyses are "rational task analyses" (Resnick, 1976) in the sense that they have not been submitted to direct empirical test. However, they do take account of existing empirical task analyses where these exist. Many of the skills presented shortly are the major components of these hierarchies.

While this procedure of analyzing the prerequisites of first grade learning implies satisfaction with the current content and instructional activities used in the schools, in fact our approach is merely realistic. Until and unless the nature of early formal schooling is modified, young children will need the kinds of skills we have identified here.

The developmental, cognitive, and educational psychological literature was consulted for information on what young children have been observed to be capable of learning, In particular, a number of analytic and empirical studies have been conducted in recent years on the nature of preschool-aged children's understanding of mathematics (e.g., Ginsburg, 1977; Gelman & Gallistel, 1978; Riley and Greeno, 1978). These studies are beginning to provide information on the kinds of quantitative knowledge children are capable of acquiring before any formal training in arithmetic is received. Children's "informal" knowledge of mathematics (Ginsburg, 1977) includes the ability to count, construct elementary concepts, and use counting and conceptual knowledge in the solution of simple problems. These abilities are attainable by young children, and appear to develop "naturally" in the course of early childhood experience in the world. It is reasonable to expect children emerging from preschool programs to have learned such skills.

"Prerequisite" Knowledge versus Early Learning of School Mathematics

The information gathered from these two overlapping sources was then integrated, resulting in a list of skills and concepts that young children can learn before beginning formal instruction in mathematics. The majority of these abilities can be considered "prerequisites" to the skills and concepts taught in first grade; first grade teaching practice assumes that children already know them. Some of the knowledge identified here forms part of the "official" first grade curriculum, and is thus not strictly prerequisite. Nevertheless, these skills and concepts are included because children from homes in which learning is stressed (e.g.,"typical" middle-class children) generally enter school with such knowledge, and instruction is likely to be brief and incomplete in many classrooms. If children emerging from Head Start do not also command these skills they are therefore very likely to fall behind and remain at a relative disadvantage. In support of this notion we refer to a study that reported a pattern of increasing gains for Follow Through children who entered first grade after explicit instruction in arithmetic content (Wang, Leinhardt, & Boston, 1978). These children typically entered first grade somewhat ahead of normal "grade level" in arithmetic, and with each subsequent year through third grade they increased this lead.

Classes of Knowledge

Three general classes of knowledge were identified: (1) perceptual and fine motor skills; (2) general conceptual knowledge of relevance to mathematics and (3) knowledge of specifically quantitative skills and concepts.

Perceptual-motor skills.

Perceptual-motor skills include the ability to make visual and auditory discriminations, and to coordinate one's body movements. The development of these skills is crucial to any child's learning in both academic and non-academic domains. Fine motor skills include manipulating, fitting , placing, and using writing instruments. Visual and auditory perceptual skills refer to processes of analyzing and organizing raw sensory data into meaningful units. Children who enter first grade with limited perceputal-motor skills, e.g., the "culturally disadvantaged," fail to profit fully from academic instruction (see discussion in Rosner, 1972).

In the current analysis, a subset of perceptual-motor skills were identified that are not most directly relevant to performing learning activities, and/or are components of more complex quantitative knowledge. With respect to first grade mathematics learning activities, children are generally required to indicate answers or participate in learning exercises by making various marks on paper, or by examining and manipulating concrete objects. Paper and pencil activities in early mathematics units include circling specified figures, coloring in, drawing lines between members of sets, etc. It is clearly assumed that the ability to follow these instructions by making the required marks on paper is automatized to the point where the children can concentrate on the mathematical content of the lesson.

First grade textbooks include pictorial representations depicting concrete quantitative situations (pictures of sets of shapes or objects, or of action sequences). These pictures are provided both as initial models by which to understand quantitative relations, and in learning and assessment activities to exercise or measure children's skills. It is assumed that the pictured situations are familiar to the children and that children can interpret the pictorial representations correctly. Recent research (e.g., Campbell, 1975) indicates that the latter is not necessarily true: some children have been observed to have difficulty correctly interpreting these pictures. However, there are indications that children who begin learning mathematics through exposure to concrete models are most successful in subsequent skill development (e.g., Westmoreland, 1974). In addition, first grade texts encourage teachers to model quantitative relations by manipulating objects and to allow children to use manipulatives during the learning process. Research on adult problem solving has revealed that expert problem solvers are characterized by thorough understanding of the physical situations depicted in problems (see discussion in Larkin, Heller, & Greeno, in press). It can be argued, then, that children's capacity to interpret concrete demonstrations of quantitative relations, and to be prepared to model such relations themselves by manipulating objects, would facilitate understanding of concrete and pictorial representations of concepts in first grade mathematics instruction. These abilities can be classified as primarily visual perceptual and motor skills.

First grade children are also expected to learn to read and write numbers and mathematical symbols. These abilities require perceptual discrimination and motor coordination at a relatively fine level of detail, whether or not the meanings of the numerical symbols are initially understood.

Finally, visual perception has been found to be highly correlated with arithmetic achievement in the first and second grades (Rosner, 1973). Apparently, understanding the quantitative dimensions of spatial relationships (e.g., for correctly interpreting concrete models of quantitative situations) includes a strong visual perception component. Unless such basic perceptual skills are developed by the time a child enters first grade, interpretation of quantitative relations and subsequent coding of such relations with numerals and other mathematical symbols will be hindered.

For these reasons, the list of abilities presented shortly includes a sequence of perceptual and motor skills involved in using writing instruments, manipulating objects, and visually interpreting pictorial and concrete situations. These activities also require general skills in interpreting and following verbally presented instructions.

As a final note, it should be realized that many of these perceptual and motor skills are intricately related to the child's early understanding of concepts. In fact, most attempts to evaluate perceptual-motor skills simultaneously assess at least minimal conceptual knowledge (e.g., in determining whether a child is capable of indicating a particular concrete object, an instruction such as, "Point to the red block " demands knowledge of what a "block" is, what "redness" is, etc.). Conversely, most assessments of conceptual knowledge demand relatively complex perceptual and/or motor skills. To the extent possible, the evaluator should minimize auxiliary demands in the design of each test task; some overlap is inevitable, however.

General conceptual knowledge.

The second category of knowledge includes a number of rather general elementary concepts that happen to be required for early mathematics learning activities or relate in some respects to the mathematical domain. Such knowledge includes a basic vocabulary and familiarity with concepts of spatial and temporal orientation, color, and shape. Because these concepts are not particular to quantitative understanding, they are considered separately from specific mathematical knowledge. For example, knowledge of spatial and temporal relations (e.g., over/under or before/after) is important as part of a child's general awareness of the physical world. It also is required for correct interpretation of quantitative situations and/or for performance of learning exercises (e.g., following an instruction like, "Color as many circles on the right as there are squares on the left"). As such, they fall in a category of general conceptual knowledge with some utility for or relevance to early instruction in mathmatics.

Quantitative skills & concepts.

The third category includes knowledge of specifically quantitative skills and concepts. Knowledge of quantitative concepts refers to familiarity with mathematical facts, vocabulary, and patterns of relations -- e.g., knowing what "four" means. Knowledge of quantitative skills or procedures refers to abilities to perform activities involving quantity -- e.g., knowing how to count.

In evaluating children's abilities, it is often difficult (and unnecessary) to distinguish conceptual from procedural knowledge. Knowledge of concepts, for example, must be demonstrated through observable activity, and demonstrating skills generally requires knowledge of concepts. However, the distinction is useful for purposes of theoretical analysis.

The specific quantitative skills and concepts identified can be organized into four categories: (1) counting and numbers; (2) concepts of equivalence, more, and less; (3) mathematical operations and problem solving; and (4) measurement.

Counting and numbers: First grade curricula generally include instruction in reading and writing of numerals, counting by ones, twos, fives, and tens through 100, and determining ordinality. It can be suggested that familiarity with the ordered string of number names (at least up to 20) and ability to count sets of objects would facilitate learning both of formal symbolic systems for representing number and of the operations of addition and subtraction that are stressed during the first grade. For this purpose, counting skills should be developed to the point that the child can both determine the cardinality of a set of figures or objects through counting and can create a set of a named size. Gelman and Gallistel (1978) and Ginsburg (1977) document findings that preschool-aged children are capable of counting, and can do so not merely mechanically but with real understanding of cardinality. Such understanding of numerosity provides children with a knowledge structure into which symbol systems can be integrated with meaning--i.e., the "syntax" of formal arithmetic notation can be learned most meaningfully if the child has a strong informal knowledge of the "semantics" of number. Preschoolers who have also begun to acquire the skills of reading and writing numerals before entering first grade will be in an even better position for progression through the more complex activities of performing arithmetic operations and problem solving, and there is increasing informal evidence that most middle class children are well advanced in these skills before they enter first grade.

Concepts of equivalence, more, and less: The concepts of equivalence, more, and less are stressed in the first grade curriculum and form the basis for many subsequent arithmetic operations. Though recent research (Gelman & Gallistel, 1978) has indicated that counting skills are the strongest bases for judgments of relative size of sets in young children, first grade texts still encourage determination of relative size without counting. That is, these concepts are to be determined by executing a "one-to-one" match between members of each of two sets and deciding which set, if any, has "extras." For this reason, we recommend inclusion of certain aspects of the one-to-one matching procedure in an evaluation of Head Start. It is important to recognize, however, that numerous studies have shown that young children have difficulty understanding the concepts of equivalence, more, and less, and that it may be very difficult to design tests that demand performance of skills that are unreasonable to expect of most children younger than six or seven.

The research to which we refer includes Piaget's studies on conservation of number which indicated that children asked to compare arrays sometimes respond to elements of the situation other than numerosity. That is, young children will label as having "more" the set that is spread over the greatest space regardless of actual numerosity. Other related studies have confirmed the problems children have in using the terms "more," "fewer (or less)" and "some" (Clark, 1973; Siegel, 1976; Palermo, 1973; Riley & Greeno, 1978). Gelman and Gallistel (1978), however, report evidence that young children can discriminate between sets on the basis of numerosity when the labels "more" and "less" are not used. In Gelman's "magic" experiments, children could indicate which of two sets was the "winner" (i.e., the one with more) after sequential trials in a concept-learning type paradigm. In addition, the young children Gelman studied had no problem determining that a set had been changed by the addition or removal of members, and could restore the set to its initial state.

Thus, preschool children are capable of understanding some of the concepts and operations that underlie set comparison. It is also clear that primitive concepts of equivalence and "moreness" are embedded in children's everyday language. Few children, for example, would tolerate having juice poured out of their glasses when they asked for more and children will work carefully to ensure equal portions of some desirable item. On the basis of these observations, we suggest that concepts of equivalence, more, and less be included in the evaluation and propose ways of conducting tests that we believe will not require that children be capable of "conservation" in the Piagetian sense. These include estimates of relative set size based on one-to-one correspondence or on counting, and tests which require the child to analyze the effect of adding or removing objects on the size of a set.

Arithmetic operations: Soon after receiving formal instruction in numeration, first graders are introduced to the operations of addition and subtraction. Reading, solving, and writing number sentences for simple sums and differences and in the solution of problems is then taught. Learning these relatively abstract processes of arithmetic can be substantially easier for children if they have a well developed informal conception of addition and subtraction before they enter first grade.

Recent studies (Gelman & Gallistel, 1978; Riley & Greeno, 1978; Hendrickson, 1979) have revealed that very young children can understand basic additive and subtractive concepts when problems are presented in simple story form and involve small numbers. Such understanding of quantitative relations apparently develops in the context of situations such as having some toys and then getting some more or losing some, or combining the cookies or money held individually by several children. If children are to learn equation building and the operations of addition and subtraction (and, later, multiplication and division) with understanding, these early concepts must be well established. If these concepts are not acquired before first grade instruction, then children have the demands of learning formal notation at the same time as they are first learning what the basic concepts are about.

Two of the most readily attainable concepts for young children can be referred to as situations of "change" and "combination" (Heller & Greeno, 1978). Change situations are those in which there is some initial quantity that is then changed as the result of an action, e.g., having some objects and getting more, or losing some. Combination situations are those in which there are two separate quantities that can be considered together to form a third group that subsumes both subsets, e.g., Tom has some apples and Jane has some apples, so that Tom and Jane have a total number of apples all together. If children can solve verbally presented addition and subtraction problems of these two types, they can be considered well prepared for learning addition and subtraction formalisms.

A third type of additive or subtractive situation can be referred to as "comparative." Comparative situations are those in which there are two quantities that differ by a certain amount, e.g., Tom writes some letters, and Dick writes some number of letters more than Tom. Comparative word problems have been found to be the most difficult for young children (Riley & Greeno, 1978). They should be included only if evaluators wish to determine whether some Head Start children have particularly advanced understanding of quantitative relations.

Although multiplication and division are not introduced in the first grade, some entering first graders are capable of solving simple multiplication and division word problems (Hendrickson, 1979). Inclusion of problems involving successive addition or subtraction, e.g., finding or losing a certain number of pennies on each of several days, or problems involving distribution of a number of objects to several people, e.g., toys shared among children, would also allow for assessment of particularly advanced development in mathematics.

It is important that when children are presented with word problems to solve they be allowed to use any "props," including fingers, counting objects such as blocks, pencil and paper to make tally marks or write numbers, etc. The interest at this level of development is in the children's understanding of the basic concepts, not in speedy or "efficient" problem solution. It may however, be of interest to note whether aids are needed and are used productively. The ability to perform operations mentally (without any aids) should be considered evidence of advanced development, and not required.

Although instruction in fractions is not introduced formally until second grade, some preparation for this later work is included in first grade curricula. First graders are taught to divide objects or figures into halves, quarters, and thirds. The concepts of a "fair share," "part," and "half" can be considered facilitative of first grade work. These concepts can be assessed in terms of actions upon concrete objects (e.g., cutting an apple into halves, or into equal parts), identification of pictures representing objects divided in halves, or verbal descriptions of the procedure a child would use to share a unit among several people.

Measurement: First grade curricula include instruction in measurement of length and telling time (to the hour). Preschoolers can be prepared for formal instruction in measurement by attainment of concepts of size (big/small; tall or long/short; as (big) as) and familiarity with measurement instruments (recognition of a clock and ruler). In addition, children should have procedures available for direct comparison of size dimensions, such as physical comparison of two sticks to determine which is longer, etc. Developmenal research (Piaget's work in geometry) makes it clear that direct comparison can develop quite early although full scale measurement, in equal units, would be a very advanced performance for preschoolers.

Evaluation Procedure

Evaluation of preschool children's knowledge must be conducted individually for each child. The children should be allowed, and even encouraged, to use any aids they naturally turn to (including fingers); their use should not be forced, however. Dependence on external aids by children of preschool age is natural; in fact, in individual testing, observations of children's choice of methods can provide important information on the nature and extent of the child's knowledge.

Except when evaluating the child's understanding of specific vocabulary, the terminology used during evaluation sessions should be designed to maximize children's comprehension, whether or not usage is strictly correct grammatically. For example, the distinction between "numbers" and "numerals" is confusing to children (and to many adults!) and they should not be burdened with demands to distinguish between such terms. Similarly, while the correct inverse of "more" is "fewer," not "less," the latter is more commonly encountered by young children and is therefore more readily understood. In general, if a child does not understand a particular instruction, it should be rephrased in various ways until it is clear whether the child is lacking the ability of interest or is failing to understand the instruction. In some cases, it may be necessary to demonstrate the activity to the child when instructions are not understood.

The words included in instructions to the children should be simple, the children should be tested by adults who are comfortable with children and can make the sessions as "game-like" as possible, and the tasks should be personalized for each child (e.g., present word problems using child's name and name of sibling) to keep him/her engaged in the activity. Using techniques of this kind we have been able to keep preschool children actively engaged for periods of 20 to 30 minutes. If necessary, multiple sessions should be conducted rather than one long session in which the child becomes uncooperative and much of the information gathered is unreliable.

List of Skills and Concepts

The following is a list of the skills and concepts young children can attain that would faciliate their learning first grade mathematics. Each ability is named, and the conditions under which it should be assessed are described. Samples of potentially useful instructions are occasionally provided as additional guidance, and other comments are included for clarification when this seemed necessary. Skills or concepts that are explicitly taught in first grade are marked with an asterisk ("*"). Those skills or concepts that are taught in first grade in the context of more complex knowledge are indicated with a number symbol ("#")--e.g., number names, which are included in instruction in reading and writing numerals. Skills and concepts taught after first grade are marked with two asterisks("**").

Perceptual and Motor Skills

Paper and pencil activities:

Skill or Concept	Conditions	Sample Instructions and Comments
1. Match figures	Shown a simple figure (e.g., geometric form), point to, draw ring around, or cross out identical figure in group of mixed figures. Repeat for two or three forms.	"Show me which one of these (indicate array) looks just like this one."
2. Match quantitative symbols	Shown a numeral (e.g., "3") or symbol ("+", "-", "="), point to, draw ring around, or cross out identical numeral or symbol (no number or symbol names required). Repeat for different symbols.	
3. Draw line connecting figures	Given a paper on which two figures are drawn, separated by a space, draw a line connecting the two figures.	"Here are two pictures of (cats). Can you draw a line from this one to this one (pointing)?"
4. Draw line connecting dots	Given a paper on which two dots are drawn, separated by a space, draw a line connecting the two dots.	
5. Color in simple figures	Given a paper on which simple geometric forms are drawn, color the area within the form's boundaries.	
6. Draw ring around specified figure	Given a paper on which several figures are drawn, draw a ring or circle around the one pointed to by the tester.	"Here are pictures of lots of things. (Can you draw a ring (circle) around this (cat) for me?"
7. Draw ring around set of figures	Given a paper on which several figures are drawn, draw ring around all figures.	

	around the cluster of figures of the type indicated by the tester (e.g., all red squares in group of red and blue).	
9. Copy simple lines	Shown a line drawing of a curve and a straight line, draw identical lines.	Visual perception and copying skills correlates of mathematics achievement and prerequisites of reading and writing
10. Copy simple geometric forms and symbols	Shown drawings of a circle, square, rectangle, triangle, X, =, +, -, draw identical forms and symbols.	
Manipulations of Concrete objects		
11. Match objects	Shown an object, indicate an identical object in a mixed group of objects.	Very early precursors of addition, subtraction , and comparison.
12. Combine sets (imitate demonstration)	Shown the activity of pushing together two piles of objects (e.g., a group of three and a group of six combined into one group of nine), and given two separate groups of objects, push two groups together.	"Watch carefully what I'm doing...Now, let me see you do exactly what I did".
13. Increment set size (imitate demonstration)	Shown the activity of transfering objects one at a time from one group to a second group, and given two separate groups, move one object at a time until one group has been added to the other.	
14. Decompose set into two subsets (imitate demonstration)	Shown the activity of separating set into two subsets (e.g., by color), and given a mixed group, separate objects into homogenous groups.	

15. Decrement set size (demonstration)	Shown the activity of decreasing the size of a set by taking some (but not all) away, and given a group of objects, move some away, leaving a smaller set remaining.	
16. Execute one-to-one correspondence (pair with linear array)	Given a row of objects, and a pool of different objects, place one new object with each object of original array.	"Here are some (toy cars/ blocks, etc.). We can put one of these (toys, blocks) right next to each of these (shows one match). Now you put one with each of the others."
17. Execute one-to-one correspondence (create two arrays)	Create two (linear) arrays, in which each object in one array has a corresponding object in the second.	"Here are some little (cats) and some (dogs). We can put them out together, so each (cat) is with one (dog) (show one match). Now you put the rest of the (dogs) and (cats) out so each (dog) has a (cat) to be with."

Relational Concepts

18.	Recognize colors by name	Point to/or draw ring around figure of color named (red, blue, yellow, green, orange).	
19.	Recognize basic geometric shapes by name	Point to, color, or draw ring around shape named (square, circle, triangle, rectangle).	Although difficult for many children, this discrimination is required in first grade.
20.	Indicate understanding of top/middle/bottom	Given drawing of objects in various positions relative to one another, point to or draw ring around figure in position named.	
21.	Indicate understanding of above/below	"	
22.	Indicate understanding of over/under	"	
23.	Indicate understanding of in/on	"	
24.	Indicate understanding of up/down	Point in the direction named.	
25.	Indicate understanding of left/right	Raise the hand named.	Although difficult for many children, this discrimination is required in first grade.
26.	Indicate understanding of before/after	Shown a sequence of activities (e.g., tester clapping hands, patting head, touching feet), answer which happened before/after middle action.	

Quantitative Concepts and Skills

Sets and relative numerosity:
16 & 17 (Above) 1-1 correspondence

27.	Notice and name change in set size	Shown a set of objects and a visible and deliberate action by tester (adding or removing object or making no change), state whether set now has more, less, same as before.	"Watch me carefully! Here are some (blocks). (Add or remove some.) Now are there more or less or the same number?" or "What happened?"
28.	Equalize set size: concept of "same"	Provided with two groups of objects of unequal or equal numerosity and a pool of other objects, make two groups have same size (or indicate they are already equal) by adding, removing, or leaving objects as they were.	"Here are two little groups of (blocks). Make them have the same number of blocks. You can use these blocks over here too if you want to."
#29.	Change set size: concept of more/less	Provided with a set of objects and a pool of other objects, make the set have "more" ("less") by adding or "subtracting" objects.	"Here are some (blocks), and lots more over there, if you want them. Make the group have more/less blocks than it has now."

Counting and numbers:

NOTE: Begin with item 32. If child fails, return to 30 and 31 for more fine-grained measurement.

#30.	Indicate knowledge of string of number names	Recite string of ordered number names as high as know (at least to 20).	
31.	Demonstrate ability to tag each of array once and only once	Given linear/non-linear array of drawn figures and/or objects, point to or touch each figure or object once and only once.	
#32.	Determine cardinality of set	Given a group of objects and/or drawing of set, count the members and state size of set (up to 15)	

#33.	Create set of named size	Provided with paper and pencil or objects, create set of named size (up to 15)	"Here are some blocks. Give me (eight) of these blocks. (Repeat emphasizing "just eight" if child does not stop at named size.)
#34.	Indicate ordinality	Given a linear array (objects or drawn), indicate member of ordinal position named (first through fifth).	"Show me the (third) block."
*35.	Read numerals	Given unordered string of written numerals, read them aloud (0 - 9 required; 10 - 20 advanced).	
*36.	Write numerals (optional)	Given paper and pencil, write numeral named (up to 20).	Advanced knowledge.
*37.	Compare numerals (optional)	Given two numerals, indicate which is more/less.	Advanced knowledge.
*38.	Compare array with numeral (optional)	Given a numeral and a set of objects or drawn array, indicate which is more/less.	Advanced knowledge.

Arithmetic operations:

#39.	Add to determine new value of set when some more added	Solve simple word problem involving initial value to which some are added (sums to 12).	Allow counting; suggest use of fingers or objects. Personalize problems--e.g., "Here are three cookies for you and I have two. How many will you have if I give you my two cookies?"
#40.	Subtract to determine new value of set when some taken away	Solve simple word problem involving initial value of which some are removed (initial value up to 12).	"Here are eight blocks. How many will you have left if I take four away from you?"

#41.	Add to determine combined value of two sets	Solve simple word problem involving two separate quantities combined to form third quantity "all together" (sums to 12).	"I have two dolls. You have four dolls. How many do we have all together?"
#42.	Subtract to determine subset value when set decomposed (optional)	Solve simple word problem involving one combined value consisting of two parts	Advanced knowledge. "You caught four fish. Your sister and you caught nine fish all together. How many fish did your sister catch?"
#43.	Subtract to determine difference between two values (optional)	Solve simple comparative word problem involving two separate quantities and an unknown difference in their values.	Advanced knowledge. "I bought five candy bars yesterday. If my friend bought two candy bars, how many more did I buy than she?"
**44.	Multiply (or add) to determine result of successive changes (optional)	Solve simple word problem involving repeated changes of constant amount.	Advanced knowledge. "My brother found two frogs a day. If he found frogs on four different days, how many frogs did he find?"
**45.	Divide (or subtract) to determine quantity each recipient will get if quantity equally distributed (optional)	Solve simple word problem involving sharing or quantity among given number of people/places.	Advanced knowledge. "Let's say you, I, and Jack found 12 pennies. How many would each of us get if we decided to share them equally among us?"
#46.	Perform abstract mental addition	Add two numbers presented verbally (sums up to 12).	"How much is six and two?" or "What is six plus two?"
#47.	Perform abstract mental subtraction	Subtract two numbers presented verbally (minuend up to 12).	"How much is eight take away one?" or "What is eight minus one?"

*48.	Complete written addition problems with sum unknown	Given addition problems in horizontal or vertical form, find sum (up to 12).	$5 + 3 =$ or $\begin{array}{r}5\\ +\ 3\\ \hline\end{array}$
*49.	Complete written subtraction problems with difference unknown	Given subtraction problems in horizontal or vertical form, find difference (minuend up to 12).	$8 - 4 =$ or $\begin{array}{r}8\\ -\ 4\\ \hline\end{array}$

Fractional concepts:

50.	Indicate understanding of "part"	Given an object or set of objects, give portion to tester when asked for "part."	
*51.	Indicate understanding of "half"	Given a set of objects (even number), given tester "half" of set.	
52.	Indicate understanding of "fair share"	Given a set of objects, divide it into equal parts to share among tester, self, friend.	Set should be equally divisible, with none "left over."

Measurement

53.	Indicate familiarity with measurement instruments	Identify object or picture named (clock, ruler, others?)	
54.	Indicate understanding of big/small	Shown pictures of different sized figures, or objects of different sizes, indicate the one named (e.g., "the big one").	Use figures or objects identical in all ways except length or mass (i.e., not a tall, thin rectangle and a short but wide square).
55.	Indicate understanding of bigger/biggest; smaller/smallest	"	

56.	Indicate understanding of long (or tall)/short	"	
57.	Indicate understanding of longer/longest; shorter/shortest	"	
58.	Determine relative size by direct comparison	Given two objects of different lengths, compare by physically aligning to determine which is longer; compare three objects to determine which is longest.	Lengths should be close enough to require alignment; show to child unaligned and see if s/he aligns.
59.	Identify object that is as long as referent	Given one object and a group of similar objects varying in length, find one that is as long as the one given.	

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APPENDIX C

Test Review Summary Form

RATING SCALE

APPROPRIATE
NOT APPROPRIATE

GENERAL INFORMATION

☐ ☐ 1. TITLE: ______________________________

2. CONTENT (Domain):

☐ Cognitive abilities
  - ☐ Prereading/prewriting
  - ☐ Premathematics
  - ☐ Problem solving/concept formation

☐ Communication abilities/language

☐ Social emotional
  - ☐ Affect toward learning/school
  - ☐ Affect toward self
  - ☐ Affect toward others
  - ☐ Other *(Specify)* ______________

☐ Psychomotor abilities

☐ Other *(Specify)* ______________

Comments:

☐ ☐ 3. AGE RANGE: _____ - _____

☐ Covers both preschool and elementary age children
☐ Covers only preschool aged children
☐ Covers only elementary school aged children

Comments:

☐ ☐ 4. DESCRIPTION:

5. PUBLISHER OR AUTHOR: ______________________________

ADDRESS: ______________________________
____
____

6. PERMISSION TO USE CAN BE OBTAINED FROM: ______________________________

7. SOURCE WHICH DESCRIBES INSTRUMENT: ______________________________

RATING SCALE

APPROPRIATE NOT APPROPRIATE

ADMINISTRATION

☐ ☐ 1. CAN BE ADMINISTERED BY:

☐ Professional
☐ Trained Paraprofessional
☐ Other *(Specify)*______________________

Comments:

☐ ☐ 2. ADMINISTRATION PROCEDURES:

☐ Test
☐ Interview
☐ Observation
☐ Rating scale
☐ Other *(Specify)*__________________

Comments:

☐ ☐ 3. RESPONSE MODE:

☐ Paper and pencil
☐ Gesture (i.e., pointing)
☐ Free response
☐ Oral
☐ Motor performance
☐ Other *(Specify)*_____________

Comments:

☐ ☐ 4. ADMINISTERED TO:

☐ Group
☐ Individual

☐ ☐ 5. LENGTH OF TEST:________________ minutes

Comments:

RATING SCALE

APPROPRIATE | NOT APPROPRIATE

PRACTICAL/RELEVANCE CONSIDERATIONS

☐ ☐ 1. AVAILABLE BY FALL 1979: ☐ Yes ☐ No ☐ Not Noted

Comments:

☐ ☐ 2. SCORING PROCEDURES:

A. Test machine readable ☐ Yes ☐ No ☐ Not Noted
B. Key from test ☐ Yes ☐ No ☐ Not Noted
C. Coding form needed ☐ Yes ☐ No ☐ Not Noted
D. Other *(Specify)*________________

Comments:

☐ ☐ 3. LIKELY TO DEMONSTRATE PROGRAM EFFECTS: ☐ Yes ☐ No ☐ Not Noted

Comments:

☐ ☐ 4. SPANISH ADAPTATION AVAILABLE: ☐ Yes ☐ No ☐ Not Noted

Comments:

RATING SCALE

APPROPRIATE | NOT APPROPRIATE

PSYCHOMETRIC VARIABLES

☐ ☐ 1. **VALIDITY**: *(If available, indicate type and relevant information).*

☐ ☐ 2. **RELIABILITY**: *(If available, indicate type and relevant information).*

☐ ☐ 3. **NORMS**: *(If available, indicate relevant information).*

☐ ☐ 4. **TEST BIAS**:

A. Racial/Cultural	☐ Yes	☐ No	☐ Not Noted
B. Linquistic	☐ Yes	☐ No	☐ Not Noted
C. SES	☐ Yes	☐ No	☐ Not Noted
D. Other *(Specify)*__________	☐ Yes	☐ No	☐ Not Noted

Comments:

RATING SCALE

APPROPRIATE ☐ NOT APPROPRIATE ☐

INSTRUMENT HISTORY

1. HAS THE INSTRUMENT BEEN USED IN OTHER NATIONAL EVALUATIONS OR LARGE-SCALE STUDIES:

☐ Yes *(Indicate number of such studies in which instrument used)*_____

☐ No

☐ Not Noted

If response to question #1 is yes, complete the following questions for each study *(use additional sheets as necessary)*.

A. NAME OR STUDY EVALUATED BY INSTRUMENT: ________________

B. DATE OF STUDY: ________________________________

C. AGE OF EXAMINEES: ________________________________

D. PROGRAM CONSTRUCT FOR WHICH INSTRUMENT WAS USED: __________

A. NAME OF STUDY EVALUATED BY INSTRUMENT: ________________

B. DATE OF STUDY: ________________________________

C. AGE OF EXAMINEES: ________________________________

D. PROGRAM CONSTRUCT FOR WHICH INSTRUMENT WAS USED: __________

A. NAME OF STUDY EVALUATED BY INSTRUMENT: ________________

B. DATE OF STUDY: ________________________________

C. AGE OF EXAMINEES: ________________________________

D. PROGRAM CONSTRUCT FOR WHICH INSTRUMENT WAS USED: __________

RATING SCALE

APPROPRIATE	NOT APPROPRIATE	
☐	☐	1. REPEATABILITY
☐	☐	2. GENERAL COMMENTS

AFTERTHOUGHTS

APPENDIX D

Child Pilot Test Battery

CHILD PILOT TEST BATTERY

NTS Research Corporation
Durham, North Carolina

Under contract to:
Administration for Children, Youth, and Families
Department of Health, Education, and Welfare

June 1979

Session I

Tests

Block Building........3
Verbal Fluency........8
Basic Information....11
Arm Coordination.....15
Reading Readiness....20
Pictorial Memory.....23
Conceptual Grouping..25

Materials

12 1" cubes
Stopwatch
4 Color cards
3 shape cards
Penny, Nickel, Dime
9 foot tape
Masking tape & rubber ball
Bean bag
4 Word cards
Alphabet cards
2 sets - sequence cards
Pictorial Memory card
12 C.G. blocks
2 - 5" X 8" white cards

Session II

Tests

Imitative Action.....36
Verbal Memory........39
PIPS.................42
Leg Coordination.....52
Number Readiness.....58
Opposite Analogies...63
Draw A Child.........66

Materials

Tube
Paper napkins
Rubber band
PIPS Cards
8½" X 11" number readiness card
3 comparative size cards
Numeral flash cards

Reading Readiness - Sequence 1 2

Pictorial Memory - Card 1 2 3

1. Child's Name____
First Middle Last

2. Parent's Name____
First Last

3. Sex of child
01 M
02 F

4. Child's birthdate ____/____/____
Month day year

5. Child's race
01 White
02 Black
03 Hispanic
04 Asian or Pacific Islander
05 American Indian or Alaskan Native

6. Test Site ____________________

7. Child Number____________________

8. 01 Original Sessions 02 Retest Sessions

	Session I	Session II
Tester Name	9. ____________	15. ____________
Sex of Tester	10. 01 M 02 F	16. 01 M 02 F
Location of Session	11. 01 Home 02 Other	17. 01 Home 02 Other
Date of Session	12. ____/____/____ mon. day yr	18. ____/____/____ mon. day year
Time of Session	13. 01 Morning 02 Afternoon 03 Evening	19. 01 Morning 02 Afternoon 03 Evening
Parent or Other Adult	14. 01 Present 02 Absent	20. 01 Present 02 Absent

BLOCK BUILDING

Materials needed: 12 1-inch cubes of the same color
interview booklet

Comments (child became ill, refused, etc.) ____________________

____

____

Time started__________

Time stopped__________

Each child is given two chances to build the structure in each item unless the child builds the structure correctly on his first try. A structure is built correctly if it looks like the model. Write down your notes for the first trial before going on to the second trial.

Give the child the correct number of blocks for each item, e.g., for the chair give the child three blocks.

The model is left standing during the child's attempts. If the child knocks down the model, rebuild it.

If, after the initial instructions are read, the child doesn't respond encourage once and score. If child still doesn't respond repeat the initial question and demonstration for the second trial.

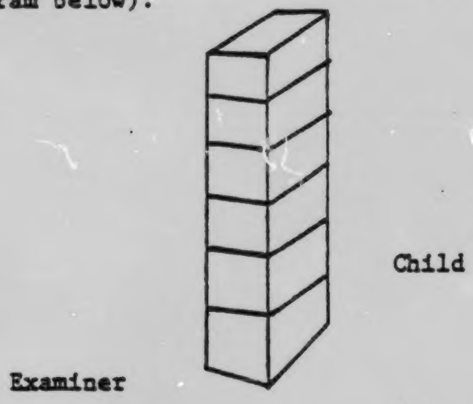
Make sure you are working on a flat, hard surface.

Discontinue test after failure of 2 consecutive items (4 trials). Failure is either a completely incorrect attempt or a no response code.

IQ/ENC - Trial 1
IQ or REP (DEMO)/ENC - Trial 2

1. Tower

Place 12 blocks on the table and build a 6-block tower about 8 inches in front of the child (see diagram below).



As you build the tower say,

- SEE THESE BLOCKS WE HAVE TO PLAY WITH? WATCH. I AM MAKING A BIG TALL TOWER. LET'S SEE IF YOU CAN MAKE A TOWER JUST LIKE IT RIGHT HERE (point to the space between the model and the child and give remaining blocks to him).

If the child adds blocks to the model say, NO, YOU MAKE YOUR OWN TOWER RIGHT HERE (point).

If the tower falls before it is completed let the child rebuild it (do not count new tower as a new trial). Rebuilding must be the child's initiative, do not encourage him.

If the child does not respond, encourage once.

Record the child's score below.

If the child didn't respond to first trial, repeat initial question and demonstration.

If the child does not successfully make a stable 6-block tower on his first trial, scramble the child's blocks and say, LET'S TRY AGAIN. MAKE ME ANOTHER TOWER JUST LIKE THIS ONE (point to the model). If child made 6-block tower, go to item 2. The blocks don't have to be lined up perfectly, but the tower must be stable to be counted. If the child is putting on the 4th block which causes the tower to tumble, score "3" as that was the number in the stable tower.

Child's Response:	1st	2nd
# of blocks in stable tower		
	DK-R-NR	DK-R-NR

(Item passed = 6)

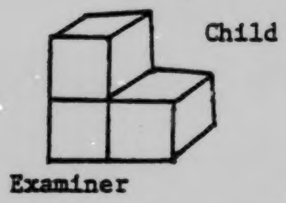
Did child pass item? Y N

2. **Chair**

Scramble the blocks and say,

● NOW LET'S SEE IF YOU CAN MAKE A NICE CHAIR JUST LIKE THIS.

About 8 inches in front of the child make a block design exactly as shown below (e.g., child sees the profile of the chair, as does the examiner).



Say,

● SEE THE CHAIR I MADE? YOU MAKE ANOTHER ONE JUST LIKE IT RIGHT HERE (point to the space between the model and the child and give the child 3 blocks).

If the child adds blocks to the examiner's model say, NO, YOU MAKE YOUR OWN CHAIR RIGHT HERE (point to the space).

If the child doesn't respond, encourage once then score Trial 1.

Record the child's score below.

Repeat initial question and demonstration if child didn't respond to Trial 1.

If the child does not make the block chair correctly (base blocks have to be touching or less than 1/4" apart) scramble his blocks and say, LET'S TRY IT AGAIN. MAKE ME ANOTHER ONE JUST LIKE THIS (point to the model).

Child's Response:	1st	2nd
a. 2 correct blocks (horizontal or vertical)	Y N	Y N
b. Correct placement of third block	Y N	Y N
c. Chair faces in same direction as the model	Y N	Y N
	DK-R-NR	DK-R-NR

(Item passed = "yes"
on a, b or c)

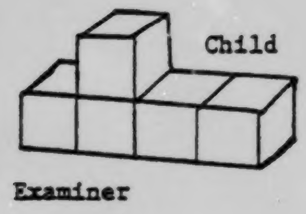
Did child pass item? Y N

3. Building

Say,

● LET'S MAKE A BUILDING LIKE THIS.

Place four blocks in a row, touching each other on the sides and place a fifth block on the second block from the child's right (see below).



Say,

● SEE MY BUILDING? YOU MAKE ANOTHER ONE JUST LIKE IT RIGHT HERE (point and give the child 5 blocks).

If the child adds blocks to the examiners model say, NO, MAKE YOUR OWN BUILDING RIGHT HERE (point).

If child doesn't respond, encourage once then score Trial 1.

Record the child's score below.

If child didn't respond to Trial 1, repeat initial question and demonstration.

If the child does not make the exact building (i.e., base blocks touching or no more than 1/4" apart and correct placement of fifth block) say, LET'S TRY AGAIN. MAKE ME ANOTHER BUILDING JUST LIKE THIS ONE (point to model).

Child's Response:	1st	2nd
a. Correct base of 4 blocks	Y N	Y N
b. Top block is placed on the second block from the child's right (regardless of number of blocks in the base).	Y N	Y N
	DK-R-NR	DK-R-NR

(Item passed = "yes"
on a or b)

Did child pass item? Y N

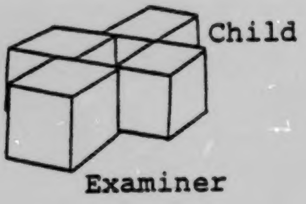
IQ/ENC - Trial 1
IQ or REP (DEMO)/ENC - Trial 2

4. **House**

Scramble blocks and say,

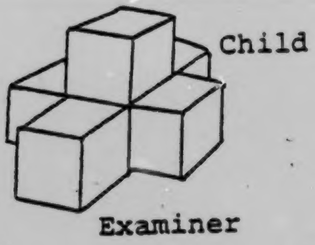
● NOW LET'S SEE IF YOU CAN MAKE A HOUSE JUST LIKE THIS. SEE, I'M MAKING THE WALLS THIS WAY.

Place 4 blocks before the child as shown below (with right and left block indented slightly).



AND THEN I'M GOING TO PUT THE ROOF ON LIKE THIS.

Place the fifth block over the center space as shown below.



Say,

● YOU MAKE ANOTHER ONE JUST LIKE MINE (give the child 5 blocks).

If the child adds blocks to the examiner's model say, NO. YOU MAKE YOUR OWN HOUSE RIGHT HERE (point).

If child doesn't respond, encourage once and score Trial 1.

Record the child's score below.

If child didn't respond to Trial 1, repeat initial question and demonstration.

If the child does not build it like the model, score his first house, scramble the child's blocks and say, LET'S TRY AGAIN. MAKE ME ANOTHER HOUSE JUST LIKE THIS ONE (point to your model).

Child's Response:	1st	2nd
a. Correct base	Y N	Y N
b. Correct placement of top block	Y N	Y N
c. 4-block base is built with no space between the four blocks, or, four blocks are placed irregularly but support the roof	Y N	Y N
	DK-R-NR	DK-R-NR

VERBAL FLUENCY

Materials needed: watch with second hand
test booklet

Comments (child became ill, refused, you felt test was invalid (indicate why), etc.)____

____

____

For this section you cannot repeat instructions. Be sure to have the child verbalizing before starting this test. The only encouragements allowed are those indicated in the directions. Administer all items.

Time Started ________________

Time Stopped ________________

IQ-specified encouragement

1. Animals

(Start timing)
Make sure you have the child's attention and say,

● CATS AND BEARS ARE ANIMALS. I WANT YOU TO TELL ME AS MANY OTHER ANIMALS AS YOU CAN BEFORE I TELL YOU TO STOP. READY, GO.

Check your watch, begin recording the child's responses below, and after 20 seconds say,

● O.K. THAT'S FINE.

If after the first 6 or 7 seconds the child has given either no responses or only 1 response or has talked about cats and bears, say TRY TO TELL ME SOME OTHER ANIMALS (do not stop the timing).

If the child waits for the interviewer to record each response before giving more say, KEEP GOING, I'LL WRITE THEM WHILE YOU TALK.

If the child gives a response such as "Whiskers" or "Spotty," wait until the 20 seconds are up and you have recorded all his responses, and then say, WHAT KIND OF ANIMAL IS WHISKERS (SPOTTY)? and record child's answer beside the name.

to specified encouragement

In all cases wait out the 20 seconds.

Child's Response	Codes
	DK-R-NR

2. Things to Eat

● BREAD AND POTATOES ARE THINGS TO EAT. I WANT YOU TO TELL ME AS MANY OTHER THINGS TO EAT AS YOU CAN BEFORE I SAY STOP. READY, GO.

Check your watch, begin recording the child's responses in the space below, and after 20 seconds say,

● O.K. THAT'S ENOUGH.

If after the first 6-7 seconds the child has given either no responses or only 1 response or has talked about bread and potatoes say, TRY TO TELL ME SOME OTHER THINGS TO EAT (do not stop the timing).

3. People's Names

● JOHN AND MARY ARE NAMES OF PEOPLE. I WANT YOU TO TELL ME AS MANY NAMES OF PEOPLE AS YOU CAN BEFORE I SAY STOP. READY, GO.

Check your second hand and record the child's responses below. After 20 seconds say,

● O.K. FINE.

If after the first 6-7 seconds the child has given either no responses of only 1 response or has repeated the names John and Mary say, TRY TO TELL ME SOME OTHER NAMES OF PEOPLE (do not stop timing).

Child's Response	Codes
	DK-R-NR

4. Toys

- BIKES AND DOLLS ARE TOYS. I WANT YOU TO TELL ME AS MANY TOYS AS YOU CAN BEFORE I TELL YOU TO STOP. READY, GO.

Check your watch, begin recording the child's responses below, and after 20 seconds say,

- O.K. THAT'S ALL.

If after the first 6-7 seconds the child has given either no response or only 1 response or has talked about dolls and/or bikes say, TRY TO TELL ME SOME OTHER TOYS (do not stop timing).

Child's Response	Codes
	DK-R-NR

Stop Timing

BASIC INFORMATION

Materials needed: 4 color cards
shape card
penny, nickel, dime

Comments (child became ill, refused, test was invalid (explain) etc.)

____

____

____

Time Started ______________

Time Stopped ______________

For all items and sub-items, if the child does not respond to the initial question, you may repeat once.

Stop test if child doesn't respond at all to 3 consecutive items.

Before starting this test you will need to know the child's birthdate.

1. **Age**

HOW OLD ARE YOU?

If child says, "I'm almost _____" probe by saying: HOW OLD ARE YOU NOW?

To pass item child must give correct number of years verbally or with fingers. Check accuracy of response after test.

Child's response	Score
	Y N DK-R-NR

2. **Body Parts** IQ/Rep per sub-item

- SHOW ME YOUR HAND.
- SHOW ME YOUR EYE.
- SHOW ME YOUR ELBOW.

Child's Response	Score
Hand	Y N DK-R-NR
Eye	Y N DK-R-NR
Elbow	Y N DK-R-NR

3. **Color Names** IQ/Rep (1st item only)

Hold up the red color card.

- WHAT COLOR IS THIS?

If child doesn't respond, repeat on 1st item only. Hold up card for maximum of 5 seconds. Put card face down and proceed the same for blue, yellow and black cards. (no repeats).

Child's Response	Score
red	Y N DK-R-NR
blue	Y N DK-R-NR
yellow	Y N DK-R-NR
black	Y N DK-R-NR

4. **Shapes**

child

□ ▽ ○

tester

Place shape cards in front of child, as shown.

- LOOK AT THESE CARDS.

- POINT TO THE CIRCLE.
  If child doesn't respond, repeat once for each sub-item.

- POINT TO THE SQUARE.
  Repeat if necessary.

- POINT TO THE TRIANGLE.
  Repeat if necessary.

Child's Response	Score
circle	Y N DK-R-NR
square	Y N DK-R-NR
triangle	Y N DK-R-NR

5. **Coins**

IQ/Rep per sub-item

Place coins (as shown) in front of child.

child

dime penny nickel

tester

- POINT TO THE PENNY
  Repeat if child doesn't respond.

- POINT TO THE NICKEL.
  Repeat if necessary.

- POINT TO THE DIME.
  Repeat if necessary.

Child's Response	Score
penny	Y N DK-R-NR
nickel	Y N DK-R-NR
dime	Y N DK-R-NR

IQ/Rep per sub-item

6. Right-Left

- LET'S SEE IF YOU CAN DO THIS. RAISE YOUR RIGHT HAND. Repeat if child doesn't respond.

- NOW RAISE YOUR LEFT HAND. Repeat if necessary.

Child's Response	Score
right	Y N DK-R-NR
left	Y N DK-R-NR

7. Birthday IQ/Rep/probe

- TELL ME, WHEN IS YOUR BIRTHDAY?

If child doesn't respond, repeat. If child gives partial answer such as "just last week" or "next month" probe with: WHAT MONTH IS (WAS) YOUR BIRTHDAY?

Score "yes" if child has correct month. Check accuracy of response after test.

Child's Response	Score
	Y N DK-R-NR

8. Days of Week IQ/Rep

- THERE ARE SEVEN DAYS IN THE WEEK. THE FIRST DAY IS SUNDAY. CAN YOU TELL ME ALL THE DAYS STARTING WITH SUNDAY?

If child doesn't respond, repeat by saying:
TELL ME ALL THE DAYS OF THE WEEK STARTING WITH SUNDAY.
Write in child's response.

Child's Response	Codes
	DK-R-NR

ARM COORDINATION

Materials needed:
- rubber ball
- beanbag
- 9-foot tape
- scotch tape
- interview booklet

Comments (child became ill, refused, you think test is invalid [indicate why], etc.) ______________________________

____

____

Time Started ____________

Time Stopped ____________

Part I. Ball Bouncing

Bring child to open space where there is a hard-surfaced floor. Start timing.

● LET'S SEE YOU BOUNCE A BALL LIKE THIS (bounce ball with palm open 6-8 times). DO IT AS WELL AS YOU CAN, AND SEE HOW LONG YOU CAN DO IT WITHOUT MISSING. GO AHEAD AND TRY IT.

A miss is when the child's open palm does not hit the ball to make it bounce (ball bounces by itself without touching child's hand,- child catches ball between bounces or child throws ball and it hits an obstacle before it hits the floor). The only time a child would score 0 is if he threw the ball into an obstacle on his first "bounce".

If the child doesn't respond say, WATCH ME AGAIN (demonstrate).
LET'S SEE YOU DO IT NOW. (This serves as the repeat.)
Score child's response.

If the child bounced the ball 15 times stop him by saying THAT'S FINE, record his score and go on to Part II.
If the child didn't bounce the ball, repeat the initial questions demonstrate, encourage if necessary, score 2nd trial.

If the child bounced the ball less than 15 times say, THAT'S FINE. TRY IT AGAIN AND SEE IF YOU CAN DO EVEN BETTER THIS TIME (do not demonstrate, encourage once if necessary). Score the second response.

Child's Response	1st	2nd
Number of bounces before a miss	DK-R-NR	DK-R-NR

Part II. Beanbag Catch Game

Stretch out the 9-foot tape full length on the floor, away from the walls and furniture and use   tape to fasten to the floor. Show the child the beanbag and let him play with it briefly.

A. Say,

● NOW WE'RE GOING TO PLAY A GAME WITH THE BEANBAG. YOU STAND RIGHT HERE WITH YOUR TOES AT THE END OF THE TAPE (point) AND I AM GOING TO THIS END (walk to the other end). I HAVE A BEANBAG AND I'M GOING TO THROW IT TO YOU. SEE IF YOU CAN CATCH IT WITH BOTH HANDS AND THROW IT BACK TO ME. READY? HERE IT COMES.

Toss the beanbag gently with an underhand motion toward the child's midline and between the knee and shoulder in height. Disregard any poor toss by the examiner.

If the child moves forward before the beanbag is thrown say, YOU NEED TO STAND AT THE END OF THE TAPE TO CATCH THE BEANBAG. If the child moves up after the bag is tossed, discount and toss again on 1st trial only. Score N on 2nd or 3rd trials. In all cases remind child to stay at end of tape. If the child uses parts of his body other than his hands to catch the beanbag score as a failure.

Record the child's response below.

If on any trial the child makes no attempt to catch or says he can't, encourage once, toss (again) and score.

Regardless of whether the child catches the beanbag or not say,

● O.K. LET'S TRY IT AGAIN. THROW IT BACK TO ME.

When you are ready to toss the beanbag for the second time say,

● SEE IF YOU CAN CATCH IT WITH BOTH HANDS AGAIN AND THROW IT BACK TO ME. READY? HERE IT COMES.

Record the child's response and go on to the third try:

● O.K. LET'S TRY IT ONCE MORE. READY? HERE IT COMES (record third toss score).

Child's Response	1st	2nd	3rd
Child caught bag with one or both hands	Y N DK-R-NR	Y N DK-R-NR	Y N DK-R-NR

If the child did not catch the bag on any of the tosses stop test. Otherwise proceed with B.

B. Say,

- NOW LET'S SEE HOW WELL YOU CAN CATCH IT WITH ONE HAND. WHICH HAND DO YOU WANT TO TRY TO CATCH IT WITH?

After the child indicates his preference say,

- PUT YOUR OTHER HAND BEHIND YOUR BACK AND TRY TO CATCH THE BEANBAG WITH ONE HAND. READY? HERE IT COMES

If on any trial the child makes no attempt to catch or says he can't, encourage once, toss (again) and score.

If the child uses parts of his body other than his hands to catch the beanbag score as a failure.

If the child changes hands say, USE THAT HAND (point to preferred hand) TO CATCH THE BEANBAG. YOU WILL HAVE A CHANCE TO CATCH THE BEANBAG WITH YOUR OTHER HAND LATER. Discount and repeat toss on 1st trial only. Score N on 2nd or 3rd trials.

If the child uses both hands to catch say, JUST USE ONE HAND TO CATCH. Discount and repeat toss on 1st trial only. Score N on 2nd or 3rd trials.

Regardless of whether the child catches or misses the beanbag, record the child's response below and say,

- O.K. LET'S TRY IT AGAIN. THROW IT BACK TO ME.

When you are ready to toss the beanbag for the second time say,

- TRY TO CATCH IT WITH ONE HAND AGAIN AND THROW IT BACK TO ME. READY? HERE IT COMES.

Record the child's response and say,

- O.K. LET'S TRY IT AGAIN. READY? HERE IT COMES (record third toss score).

Child's Response	1st	2nd	3rd
Child caught bag with preferred hand	Y N DK-R-NR	Y N DK-R-NR	Y N DK-R-NR

If the child did not catch the beanbag on any of the three tosses do not give C

IQ-E per trial

C. Say,

● NOW PUT THAT HAND (pointing to his preferred hand) BEHIND YOUR BACK AND SEE HOW WELL YOU CAN CATCH IT WITH THE OTHER HAND. READY? HERE IT COMES.

If the child uses parts of his body other than his hand to catch the beanbag score as a failure.

If on any trial child makes no attempt to catch or says he can't, encourage once, toss (again) and score.

If the child changes hands say, USE THAT HAND (pointing to nonpreferred hand) TO CATCH THE BEANBAG. Discount and repeat toss on 1st trial only. Score N on 2nd and 3rd trials.

If the child uses both hands to catch say, JUST USE ONE HAND and do not score. Discount and repeat toss on 1st trial only. Score N on 2nd and 3rd trials.

Regardless of whether the child catches or misses the beanbag, record his first toss score and say,

● O.K. LET'S TRY IT AGAIN. THROW IT BACK TO ME.

When you are ready to toss the beanbag for the second time say,

● TRY TO CATCH IT WITH ONE HAND AGAIN AND THROW IT BACK TO ME. READY? HERE IT COMES.

Record the child's second try and say,

● O.K. LET'S TRY IT AGAIN. READY? HERE IT COMES (record third toss score).

Child's Response	1st	2nd	3rd
Child caught bag with nonpreferred hand	Y N DK-R-NR	Y N DK-R-NR	Y N DK-R-NR

Stop timing

READING READINESS

Materials needed: 4 word cards
alphabet flash cards
6 sequence cards

Comments (child became ill, refused, test was invalid (explain) etc.)

____

____

____

Time Started ____________________

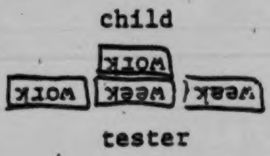
Time Stopped ____________________

Start Timing

IQ/Rep per item

1. **Word Matching**

Lay 3 word cards out in row in front of child as shown. Lay key card in front of row.



● I HAVE THREE WORDS HERE (point to row) AND ONE WORD HERE (point). POINT TO THE ONE THAT (point to row) IS THE SAME AS THIS ONE (point to key card).

If the child doesn't respond or points to the key card, repeat once by saying: WHICH ONE OF THESE (point to row) IS THE SAME AS THIS ONE (point to key card).

Child's response	Score
child selected correct card	Y N DK-R-NR

2. **Identify Letter**

IQ/Rep (1st letter only)

Present alphabet flash cards, one at a time in random order. Hold each card up for a maximum of 5 seconds. For each letter, say:

● TELL ME THE NAME OF THIS LETTER.

If the child doesn't respond to the first letter within 5 seconds, repeat once (first letter only) by saying:

I'LL BET YOU CAN DO IT. TELL ME THE NAME OF THIS LETTER. (Give child additional 5 seconds.)

Whether or not child responds, go on to next letter. Stop after 10 tally marks in DK-R-NR.

Make a tally mark for each letter as child responds. Write total after completion of test.

Number Correct Responses	Number Wrong Responses	Number DK-R-NR
Total______	Total______	Total______

Lay example (egg) sequence cards on table in front of child in 1 - 3 - 2 sequence.

child
1 - 3 - 2
tester

● LOOK AT THESE PICTURES (pause) THESE PICTURES CAN TELL A STORY IF THEY ARE PUT TOGETHER THE RIGHT WAY, LIKE THIS.

Re-order in sequence (1-2-3 from child's view). Pause.

child
3 - 2 - 1
tester

Remove first set, put out either apple (1) or pouring (2) set in 2-1-3 ord

child
2 - 1 - 3
tester

● THESE PICTURES ALSO TELL A STORY IF THEY ARE PUT TOGETHER THE RIGHT WAY. NOW YOU PUT THEM TOGETHER THE RIGHT WAY SO THEY TELL A STORY.

If child doesn't respond or stacks cards, (unstack, and) repeat once by saying:

I'LL BET YOU CAN DO IT. PUT THESE PICTURES TOGETHER SO THAT THEY TELL A STORY.

Child's Response	Score
child put cards in 1-2-3 sequence	Y N DK-R-NR

4. **Recite Alphabet**

● DO YOU KNOW YOUR ALPHABET? SAY IT OUT LOUD FOR ME STARTING WITH A,B,C.

If the child doesn't respond, repeat once by saying:

I'LL BET YOU CAN DO IT. SAY THE ALPHABET STARTING WITH A,B,C.

If the child asks to start again, (s)he may do so. If a child correctly recites entire alphabet, record only "A-Z."

Child's response	Codes
	DK-R-NR

PICTORIAL MEMORY

Materials needed: Pictorial Memory Card
Stopwatch
Interview booklet

Comments (child became ill, refused, test was invalid [explain] etc.)

____

____

____

Time started __________

Time stopped __________

● I AM GOING TO SHOW YOU A PICTURE OF SOME THINGS. THEN I WILL TAKE IT AWAY AND SEE HOW MANY OF THE THINGS YOU CAN REMEMBER. HERE THEY ARE.

Place card on the table in front of child. Start stopwatch as you begin to name the objects.

Point to each one as you name it, moving at a rate of one per second.

● LOOK CAREFULLY. WE HAVE A: (start stopwatch)

1) cup, pencil, bird, shoe, flower, and truck

or

(Use one card per child)

2) spoon, comb, dog, chair, apple and blocks

or

3) fork, scissors, cat, bed tree, and book

Allow a few more seconds for inspection for a total of 10 seconds including naming time. Remove card from sight. Reset the stopwatch.

● NOW TELL ME WHAT YOU SAW.

Start the stopwatch. Allow 90 seconds total time for the child to respond.

If the child does not respond within 10 seconds, repeat once by saying:

I'LL BET YOU CAN DO IT. TELL ME WHAT YOU SAW.

If the child names only 1 or 2 objects, wait 10 seconds then probe by saying:

AND WHAT ELSE?

If the child names 3 or 4 objects and stops, wait 10 seconds then probe by saying:

TRY TO TELL ME SOME SOME MORE OF THEM.

The test may be stopped before the 90 seconds have elapsed if it seems apparent that the child is through responding. (Wait at least 10 seconds after the last response.)
Score "Y" if child names or describes object correctly. "Thing you cut with" is correct for scissors, but glass is wrong for cup. Circle N for all unmentioned items unless DK-N-NR is circled for entire test.

DK N NR		DK N NR		DK N NR	
cup	Y N	spoon	Y N	fork	Y N
pencil	Y N	comb	Y N	scissors	Y N
bird	Y N	dog (puppy)	Y N	cat (kitten)	Y N
shoe (sneaker)	Y N	chair	Y N	bed	Y N
flower (daisy)	Y N	apple	Y N	tree	Y N
truck	Y N	blocks	Y N	book	Y N

CONCEPTUAL GROUPING

Materials needed:	1 piece of cardboard	(5" x 8")
	a set of 12 blocks;	6 squares and 6 circles--with each shape provided in three colors (red, yellow, blue) and two sizes per color
	interview booklet	

Comments (child became ill, refused, you felt test was invalid (indicate why), etc.) ____________________

____

____

Time Started ____________

Time Stopped ____________

Place the cardboard in front of the child. The long edge of the cardboard should be facing the child. The blocks should be placed on the table, in front of the examiner, out of reach of the child.

If the child does not respond, encourage him once. If he still doesn't respond repeat the instructions for him once and record his response.

If the child asks any questions during the test such as, "Is this a square block?" say, YOU DO WHAT YOU THINK IS RIGHT or, YOU DECIDE; IT'S UP TO YOU.

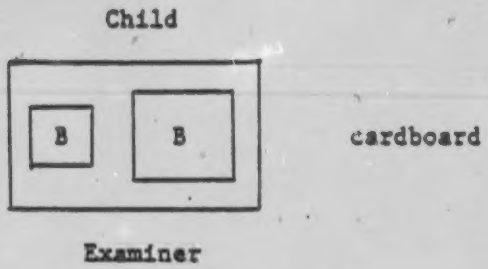
Discontinue the test after four consecutive item failures. A failure means that at least one of the questions within an item is marked wrong (w) or DK.-NR - R is circled. For example, if you ask the child to point to the red circle and then to the blue circle and he only points to one correctly that item is FAILED. In other words, a child has to answer all the questions within an item correctly (c) in order to pass that item.

Also discontinue the test after two consecutive items in which the child doesn't respond (DK,-NR,- R).

When introducing the materials do not mention colors, shapes, or sizes.

IQ/Enc/Rep per sub-item

1. Place the blue blocks exactly as shown in the diagram below.



Be sure the edge of the squares are parallel to the edges of the cardboard. Say,

● PICK UP THE LITTLE ONE AND GIVE IT TO ME.

Codes		
C	W	DK-R-NR

Replace the block the child gave to the interviewer.

● NOW GIVE ME THE BIG ONE.

Codes		
C	W	DK-R-NR

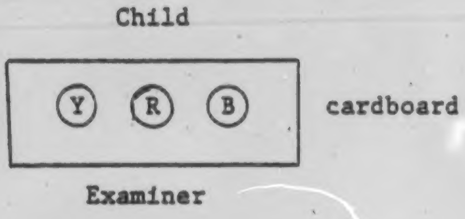
After the child has responded, to both questions, confirm or correct his responses by saying:

● (YES) THIS IS THE LITTLE ONE (pointing), AND THIS IS THE BIG ONE (pointing).

Did the child pass? Y N
(both parts)

IQ/Enc/Rep   per sub-item

2. Remove the 2 blue squares and place the small circles exactly as shown below.



Say,

- HAND ME THE RED ONE.

Codes		
C	W	DK-R-NR

Replace the block the child selected.

- NOW GIVE ME THE YELLOW ONE.

Codes		
C	W	DK-R-NR

Replace the block the child selected.

- FIND THE BLUE ONE AND GIVE IT TO ME.

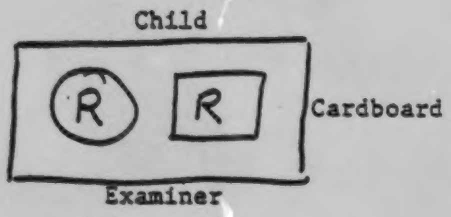
Codes		
C	W	DK-R-NR

After the child has responded to all three questions. Say,

- (YES) THIS IS THE RED ONE (point), THIS IS THE YELLOW ONE (point) AND THIS IS THE BLUE ONE (point).

Did child pass item?   Y   N
(both parts)

3. Remove the 3 small circles. Place the large red circle and square exactly as shown below.



Be sure the edge of the square is parallel to the edge of the cardboard. Say,

- FIND THE SQUARE ONE AND GIVE IT TO ME.

Codes		
C	W	DK-R-NR

Replace the block the child selected.

- NOW GIVE ME THE ROUND ONE.

Codes		
C	W	DK-R-NR

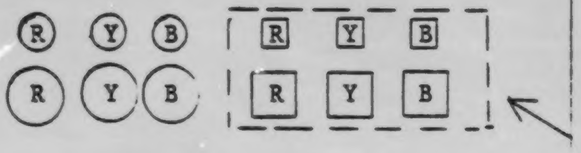
After he has responded to both questions. Say,

- (YES) THIS IS THE SQUARE ONE (point) AND THIS IS THE ROUND ONE (point).

Did child pass item? Y N
(both parts)

4. Scatter all of the 12 blocks randomly on the table before the child. Make certain that all the blocks are clearly visible and within the child's reach and that none are on the cardboard. Say,

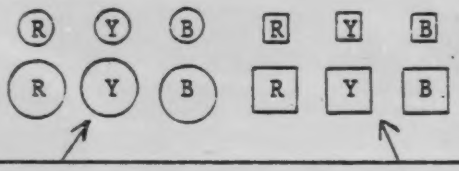
● NOW I HAVE SOME MORE TO SHOW YOU. SEE ALL OF THESE? FIND ALL THE SQUARE ONES AND PUT THEM RIGHT HERE ON THIS CARD (point). REMEMBER, PUT ALL THE SQUARE ONES OVER HERE (point to the card).

Child's Response	Codes
(put an X on the blocks the child put on the cardboard) 	C W DK-R-NR

Did child pass item? Y N

5. Rescramble all the blocks and say,

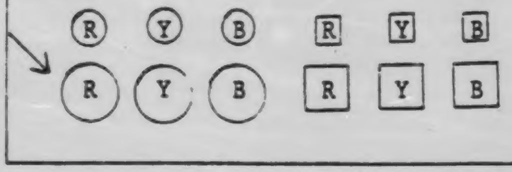
● NOW FIND JUST THE THINGS THAT ARE YELLOW AND BIG. PUT THEM ON THE CARD. REMEMBER, JUST THE ONES THAT ARE YELLOW AND BIG.

Child's Response	Codes
(put an X on the blocks the child put on the cardboard) 	C W DK-R-NR

Did child pass item? Y N

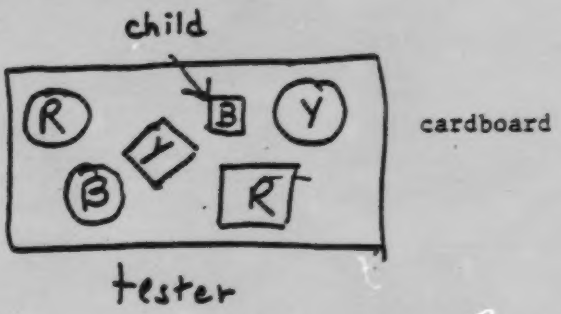
6. Rescramble all the blocks and say,

● NOW GIVE ME ANYTHING THAT IS BIG AND ROUND AND RED. REMEMBER, GIVE ME THE THINGS THAT ARE BIG AND ROUND AND RED.

Child's Response	Codes
(put an X on the blocks the child pointed to) 	C W DK-R-NR

Did child pass item? Y N

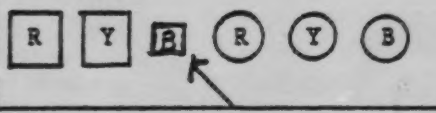
7. Place the small blue square and all the large blocks except the large blue square (see diagram below) on the cardboard in a random fashion. Remove all other blocks from the child's reach.



Say,

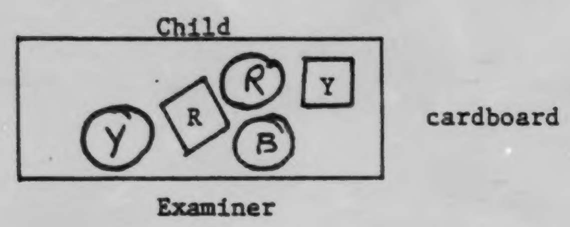
● ONE OF THESE THINGS SHOULDN'T BE HERE (point over whole card). GIVE ME THE ONE THAT DOESN'T BELONG.

If child choses more than 1 say, REMEMBER, ONLY ONE THING. FIND THE ONE THAT DOES NOT BELONG AND GIVE IT TO ME.

Child's Response	Codes
(put an X on the block the child identified) 	C W DK-R-NR

Did child pass item? Y N

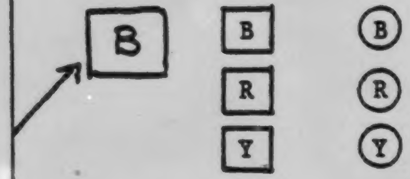
8. Use the same blocks as for item 7, (all the large blocks except the blue square) but remove the small blue square from the cardboard and put it with the rest of the blocks. (If the child has removed a large block, return it to the card.) See diagram below.



● Put the rest of the scrambled blocks in front of the child. ONE OF THESE (point to the scrambled blocks) GOES BEST WITH THE THINGS ON THE CARD. FIND IT AND PUT IT ON THE CARD.

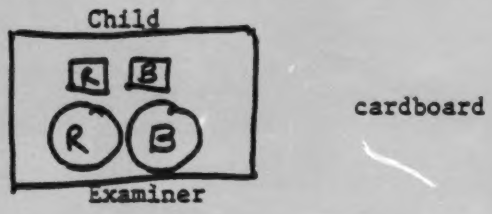
If the child gets more than 1 say, REMEMBER, ONLY ONE THING. WHICH ONE GOES BEST WITH THE THINGS ON THE CARD? (counts as repeat)

If the child selects a block on the card replace it and say, WHICH ONE OF THESE (point to scrambled blocks) GOES BEST WITH THE THINGS ON THE CARD? (counts as repeat)

Child's Response	Codes
(put an X on the block the child identified)  	C W DK-R-NR

Did child pass item? Y N

9. Remove the blocks from the cardboard. Arrange the large red and blue circles and small red and blue squares on the cardboard as shown below. Scramble the other blocks and place them near the child.

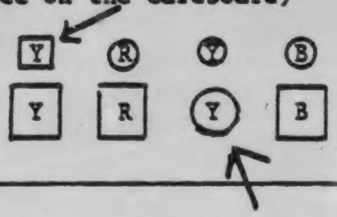


Say,

● TWO OF THESE HERE (point to the scrambled blocks) GO BEST WITH THE THINGS ON THE CARD. FIND BOTH OF THEM AND PUT THEM ON THE CARD.

If the child chooses more or less than 2 blocks say, REMEMBER, I ASKED YOU TO FIND 2. WHICH 2 FROM HERE (point) GO BEST WITH THE THINGS ON THE CARD? (counts as repeat)

If the child chooses a block on the cardboard replace it and say, WHICH 2 FROM HERE (point to the scrambled blocks) GO BEST WITH THE THINGS ON THE CARD? FIND THEM AND PUT THEM HERE ON THE CARD. (counts as repeat)

Child's Response	Codes
(put an X on the blocks the child place on the cardboard) 	C W DK-R-NR

TESTING CONDITIONS

Circle appropriate statements

1. Environmental Conditions

    1. No problems → go to Administration.
    2. Problems with testing area. Describe____________________
    3. Child disrupted during testing. Describe____________________

2. Administration

    1. No problems → go to Materials.
    2. Test administrator procedural errors. Describe____________________
    3. Tests given out of sequence.

3. Materials

    1. No problems → go to Child Performance.
    2. Problems with test materials. Describe____________________

4. Child Performance

    1. No problems → go to next page.
    2. Child had difficulty speaking or understanding English.
    3. Child inattentive, restless, difficult to control. Describe
    4. Child would not respond or refused to continue. Describe.
    5. Child had difficulty due to physical condition. Describe.
    6. Special child related problems. Describe.

CHILD RATINGS

Circle appropriate statements

A. Attentiveness

1. Attentive, involved, responsive.
2. Somewhat inattentive and uninvolved.
3. Easily distracted, must be urged to pay attention.

B. Emotionality

1. Actively enjous task, enthusiastic.
2. Matter of fact/casual about, but generally involved.
3. Appears distressed, or expresses dislike.

C. Persistence

1. Very persistent, difficult items lead to redoubled effort.
2. Some persistence, doesn't give up without trying.
3. Little persistence, gives up quickly.

D. Response Speed

1. Responds quickly to instructions, no hesitation.
2. Some deliberation, but response generally not slow.
3. Often slow to respond.

E. Talkativeness

1. Very talkative (e.g., provides many elaborations).
2. Average amount of verbal expression.
3. Not talkative, gives minimal verbal response.

F. Speech Comprehensibility

1. Child's speech not at all difficult to understand.
2. Child's speech somewhat difficult to understand (specify).
3. Child's speech extremely difficult to understand (specify).

G. Initial Reaction

1. Child quickly adapted to test situation.
2. Child was somewhat hesitant in the beginning.
3. Child was generally resistive and uncomfortable.

H. Tester Reaction

1. Enjoyed testing this particular child a great deal.
2. Found testing this particular child somewhat enjoyable.
3. Found little enjoyment in testing this particular child.

Put any general comments on next page.

IMITATIVE ACTION

Materials needed: tube
paper towels
tape or rubber band

Comments (child became ill, refused, you felt test was invalid [indicate why], etc.)

____

____

____

Time started____________

Time stopped____________

IQ/ENC per item

Start Timing

1. **Cross Feet**

Pull your chair (and child's) out from table so that you are in full view of the child. Sit down and say:

● WATCH ME

Make sure child is watching you, then, with a deliberate action, cross your feet at the ankles, right foot over left.

● CAN YOU DO THIS TOO?

If the child does not respond, encourage once by saying: LET'S SEE YOU DO IT.

Child crossed feet at ankles, regardless of which foot is on top	Y N
	DK-R-NR

2. **Fold Hands**

Move your chair and child's back to table. Place your hands (unfolded) on the table.

● WATCH ME AGAIN

Fold your hands with fingers intertwined, right thumb crossed over left.

● CAN YOU DO THIS TOO?

If the child does not respond, encourage once by saying: LET'S SEE YOU DO IT.

Child folded hands, fingers intertwined, with either thumb on top	Y N
	DK-R-NR

3. Twiddle Thumbs

Remain at table with hands unfolded and say:

- NOW HOW ABOUT THIS?

Fold your hands as in previous item and twiddle (rotate) your thumbs.

- CAN YOU DO THIS?

If child doesn't respond, encourage once by saying: LET'S SEE YOU DO IT.

Child folds hands and twiddles thumbs	Y N
	DK-R-NR

4. Sight Through Tube

Wrap fresh paper towel around tube so entire tube is covered. Fasten with tape or rubber band. Do not fold paper in at ends. (Paper is health precaution for child.)

- THIS IS A TUBE TO LOOK THROUGH. WATCH.

Hold the tube up to your right eye with your right hand. Touch covering paper to your face. Look at child through tube. Then hand it to child (so that he will look through the other end).

- NOW YOU TRY IT. LOOK AT ME THROUGH THE TUBE.

If the child does not respond, encourage once by saying: LET'S SEE YOU DO IT.

Child holds tube (one or both hands) with paper touching or almost touching face and looks through with either eye	Y N
	DK-R-NR

Stop timing

IQ-specified encouragement

VERBAL MEMORY

Time started ________
Time stopped ________

Materials needed: test booklet

Comments (child became ill, refused, you felt test was invalid (indicate why), etc.)______________________________

____

____

Part I

Read the words in items 1-4 at a rate of about 1 word per second. Read the sentences in items 5 and 6 slowly and clearly. Do not repeat any of the items for a child. If the child doesn't respond at all, wait 4-5 seconds and then encourage him once by saying, I'M SURE YOU CAN SAY THOSE WORDS. If he still refuses code the appropriate code. If the child starts repeating the words before the tester is finished say, "WAIT" and continue with the words. Record only those responses the child gave after the tester said all the words.

Start timing

● NOW I AM GOING TO SAY SOME WORDS AND I WANT TO SEE HOW MANY OF THEM YOU CAN SAY AFTER ME. WAIT UNTIL I HAVE FINISHED SAYING ALL THE WORDS BEFORE YOU START TO ANSWER. LISTEN.

Make sure you have the child's attention and say,

1. HERE'S WHAT I WANT YOU TO SAY: toy----chair----light

Child's Response (write-in)	Codes
	DK-R-NR

2. NOW SAY: doll----dark----coat

Child's Response (write-in)	Codes
	DK-R-NR

3. NOW SAY: after----color----funny----today

Child's Response (write-in)	Codes
	DK-R-NR

4. NOW SAY: around----because----under----never

Child's Response (write-in)	Codes
	DK-R-NR

5. NOW SAY: The boy said goodby to his god every morning before he went to school.

Child's Response (write-in)	Codes
	DK-R-NR

6. NOW SAY: The girl tied a pretty pink ribbon on her doll before she went out.

Child's Response (write-in)	Codes
	DK-R-NR

Stop Part I if the code is circled for 3 consecutive items.

If the code is circled for 3 consecutive items or if the child's responses have been unrelated to the stimuli in 3 consecutive items, do not give Part II.

Part II

Read the story below slowly, clearly, and with emphasis. Say,

● NOW I AM GOING TO READ YOU A LITTLE STORY. LISTEN CAREFULLY, SO YOU CAN TELL IT BACK TO ME. YOU DON'T HAVE TO TELL IT BACK EXACTLY THE WAY I READ IT. WHEN I'M FINISHED TELL ME THE STORY AS WELL AS YOU CAN. O.K.?

> ONE DAY AFTER SCHOOL BOB WAS WALKING TO THE STORE. ON THE WAY HE SAW A WOMAN CARRYING SOME LETTERS TO A MAILBOX. SUDDENLY, THE WIND BLEW THE WOMAN'S LETTERS INTO THE STREET. BOB SHOUTED, "I'LL GET THEM FOR YOU!" HE LOOKED BOTH WAYS AND SAW THAT THERE WERE NO CARS COMING. HE RAN INTO THE STREET AND PICKED UP ALL OF THE LETTERS. THE WOMAN WAS VERY HAPPY TO GET HER LETTERS BACK. SHE THANKED BOB FOR BEING SUCH A KIND AND HELPFUL BOY.

● NOW TELL ME WHAT HAPPENED IN THAT STORY.

IQ-specified encouragement

Record the related parts of the child's story in the space below.

If the child appears to block on the task, says he cannot do it, or starts talking briefly (e.g., 2 Or 3 sentences) and stops, encourage him three times with any of the following probes:

I'M SURE YOU CAN DO IT.

TELL ME WHAT HAPPENED IN THAT STORY.

WHAT ELSE HAPPENED IN THAT STORY?

If the child starts to tell a completely different story, stop him after 2-3 sentences by saying, THAT'S A VERY NICE STORY, BUT TRY TO TELL ME ABOUT THE ONE THAT I JUST READ TO YOU (do not record the unrelated story).

Write the child's story-related response below. Do not include questions the child asks you like, "Is that enough?" or "Do you want me to say more?" (Respond to questions such as these by saying, THAT'S FINE.)

Child's Response (write-in)	Codes
	DK-R-NR

Stop Timing

PRESCHOOL INTERPERSONAL PROBLEM-SOLVING TASK (PIPS)

Materials needed:	8 cut-out male pictures 8 cut-out female pictures 8 cut-out toys test booklet

Comments (child became ill, refused, you felt test was invalid [indicate why], etc.) ____________________

____

____

Time Started ________

Time Stopped ________

General Administration Procedures

Be sure you have the PIPS Scoring Category Sheet handy

If you are interviewing a girl use the girl cut-outs, if a boy, the boy cut-outs. The set consists of 8 girls and 8 boys. Since the task consists of 7 items, each of which involves two cut-outs of the same sex, you will be using some of the same cut-outs more than once. Use different names for each item to maintain the child's interest making sure not to use the child's name.

The toys should be prearranged in the order they appear in the interview booklet. (The cut-out dolls do not need to be in any specific order.) The pictures (cut-outs and toys) should be placed upright against an object for maximum ease and at a distance from the child. As each set of pictures (child and toy) is removed, they should be placed face down out of the child's view.

Never reinforce a particular solution by saying, "Good," "That's a good idea," or "That's right." Such reinforcements will only encourage the child to repeat it for the next story. By following their response with the statement, THAT'S ONE WAY, NOW THE IDEA...it is relayed to the child that thinking of lots of different ways is the idea of the game...

Stop the test if a child remains silent, gives a repeated answer or says, "I don't know" for 2 consecutive stories (e.g., for 6 consecutive child response boxes).

When to probe:
a) DK-R-NR
b) repeated answer
c) answer that doesn't solve the problem

5 probes:
a) say
b) do
c) renumerate (recap responses)
d) classify responses
e) repeat the story root

Clarifying:
a) TELL ME MORE ABOUT THAT (once per response)

No encouragements are used unless they are given in conjunction with a probe.

No encouragements/use probes

1. Truck (or doll)

- I'VE GOT SOME PICTURES AND I'M GOING TO TELL YOU SOME STORIES ABOUT CHILDREN. LET'S PRETEND THAT ALL THE CHILDREN ARE ______ YEARS OLD. O.K.? (insert child's age)

- HERE'S JOHNNY (MARY).

  Place the picture upright in full view of the child.

- HERE'S JIMMY (SUE).

  Place the picture next to Johnny (Mary).

- CAN YOU TELL ME WHAT TOY THIS IS?

  Hold up the first toy (truck or doll) and let the child respond. If the child does not correctly identify the toy say, THIS IS A TRUCK (DOLL).

  Place the toy picture so it overlaps that of Johnny (Mary).

- NOW, JOHNNY (MARY) HAS BEEN PLAYING WITH THIS (never say "his") TRUCK (DOLL) FOR A LONG TIME AND JIMMY (SUE) WANTS A CHANCE TO PLAY WITH IT. BUT JOHNNY (MARY) KEEPS ON PLAYING WITH IT.

- (Memory cue): WHO'S BEEN PLAYING WITH THE TRUCK (DOLL) FOR A LONG TIME? YOU CAN POINT. Let the child point and say, THAT'S RIGHT. JOHNNY (MARY) (point to that cut-out). WHO WANTS TO PLAY WITH IT? Let the child respond, and say, THAT'S RIGHT, JIMMY (SUE) (point to Jimmy [Sue]). If the child does not respond correctly to the memory cues, repeat the story.

The memory cue is only to assure that the child understands the story. It can, in subsequent stories, be shortened to, WHO HAS IT?, WHO WANTS IT? The tester can judge at what point in the test memory cues are no longer needed. The direction, YOU CAN POINT, is given because the child does not need to remember the names of characters. Names are presented for interest only.

No encouragements/use probes

- JIMMY (SUE) WANTS TO PLAY WITH THE TRUCK (DOLL). WHAT CAN HE/SHE DO TO GET A CHANCE TO PLAY WITH THE TRUCK (DOLL)?

See the administration manual for relevant information regarding probing and recording responses.

Child's Response	Codes
	DK-R-NR
	DK-R-NR
	DK-R-NR

When the child responds with a relevant solution to the problem say,

- THAT'S ONE WAY. NOW THE IDEA OF THIS GAME IS TO THINK OF LOTS OF WAYS TO GET A CHANCE TO PLAY WITH TOYS. O.K.?

Use different names in the following items.

2. Shovel

- HERE'S ____(A)____.

  Place the picture upright in full view of the child.

- HERE'S ____(B)____.

  Place the picture next to (A).

- CAN YOU TELL ME WHAT TOY THIS IS?

  Hold up the shovel and let the child respond. If the child answers incorrectly say, THIS IS A SHOVEL.

  Place the shovel so it overlaps with (A).

- NOW, LET'S PRETEND THAT (A) HAS BEEN PLAYING WITH THIS SHOVEL ALL MORNING AND (B) WANTS A CHANCE TO PLAY WITH IT.

- (Memory cue): WHO HAS IT? WHO WANTS IT? (Use longer version if necessary.)

- (B) WANTS TO PLAY WITH THE SHOVEL. WHAT CAN HE/SHE DO TO GET A CHANCE TO PLAY WITH THE SHOVEL.

  See the administration manual for information on probing and recording responses.

Child's Response	Codes
	DK-R-NR
	DK-R-NR
	DK-R-NR

When the child responds with a second relevant solution, say,

- NOW YOU'VE GOT THE IDEA OF THE GAME. NOW YOU'VE GOT TWO WAYS.

No encouragements/use probes

3. Kite

- HERE'S ____(C)____.

  Place the picture upright in full view of the child.

- HERE'S ____(D)____.

  Place the picture next to (C).

- CAN YOU TELL ME WHAT TOY THIS IS?

  Hold up the kite and let the child respond. If the child answers incorrectly say, THIS IS A KITE.

  Place the kite so it overlaps with (C).

- NOW, (C) HAS BEEN OUT IN THE YARD PLAYING WITH THIS KITE FOR A LONG TIME AND (D) THINKS HE WOULD LIKE TO PLAY WITH THE KITE.

  Use a memory cue here if needed.

- WHAT CAN (D) (point to D) DO SO HE/SHE CAN HAVE A CHANCE TO FLY THE KITE (point to the kite)?

  See administration manual for information on probing and recording responses.

Child's Response	Codes
	DK-R-NR
	DK-R-NR
	DK-R-NR

No encouragement/use probes

4. Swing

- HERE'S ____(E)____.

  Place the picture upright in full view of the child.

- HERE'S ____(F)____.

  Place the picture next to (E).

- CAN YOU TELL ME WHAT TOY THIS IS?

  Hold up the swing and let the child respond. If the child answers incorrectly say, THIS IS A SWING.

  Place the swing so it overlaps with (E).

- TODAY (F) WANTS TO USE THE SWING BUT (E) IS ALREADY ON IT.

  Use a memory cue here if needed.

- WHAT CAN (F) (point to F) DO SO HE/SHE CAN HAVE A CHANCE ON THE SWING (point to the swing)?

  See the administration manual for information on probing and recording responses.

Child's Response	Codes
	DK-R-NR
	DK-R-NR
	DK-R-NR

No encouragement/use probes

5. Drum

- HERE'S ____(X)____.

  Place the picture upright in full view of the child.

- HERE'S ____(Y)____.

  Place the picture next to (X).

- CAN YOU TELL ME WHAT TOY THIS IS?

  Hold up the drum and let the child respond. If the child answers incorrectly say, THIS IS A DRUM.

  Place the drum so it overlaps with (X).

- ONE DAY (X) WAS PLAYING WITH THIS DRUM AND HE/SHE WAS PLAYING WITH IT FOR A LONG TIME. (Y) WANTED TO PLAY WITH IT.

  Use a memory cue here if needed.

- WHAT CAN (Y) (point to Y) DO SO HE/SHE CAN GET TO PLAY WITH THE DRUM (point to the drum)?

  See the administration manual for information on probing and recording responses.

Child's Response	Codes
	DK-R-NR
	DK-R-NR
	DK-R-NR

No encouragements/use probes

6. Boat

- HERE'S ____(M)____.

Place the picture upright in full view of the child.

- HERE'S ____(N)____.

Place the picture next to (M).

- CAN YOU TELL ME WHAT TOY THIS IS?

Hold up the boat and let the child respond. If the child answers incorrectly say, THIS IS A BOAT.

Place the boat so it overlaps with (M).

- (M) HAS BEEN PLAYING WITH THIS BOAT FOR A LONG TIME AND (N) WANTS TO PLAY WITH IT.

Use a memory cue here if needed.

- WHAT CAN (N) (point to N) DO SO HE/SHE CAN GET TO PLAY WITH THE BOAT (point to the boat)?

See the administration manual for information on probing and recording responses.

Child's Response	Codes
	DK-R-NR
	DK-R-NR
	DK-R-NR

NO encouragement/use probes

7. Tricycle

- HERE'S ____(R)____.

  Place the picture upright in full view of the child.

- HERE'S ____(S)____.

  Place the picture next to (R).

- CAN YOU TELL ME WHAT TOY THIS IS?

  Hold up the tricycle and let the child respond. If the child answers incorrectly say, THIS IS A TRICYCLE.

  Place the tricycle so it overlaps with (R).

- NOW, (R) HAS HAD THE TRICYCLE ALL MORNING AND (S) WANTS TO HAVE A CHANCE WITH IT.

  Use a memory cue here if needed.

- WHAT CAN (S) (point to S) DO SO HE/SHE CAN RIDE THE TRICYCLE (point to the tricycle)?

  See the administration-manual for information on probing and recording responses.

Child's Response	Codes
	DK-R-NR
	DK-R-NR
	DK-R-NR

LEG COORDINATION

Materials needed: 9-foot tape
watch with second hand
scotch tape
interview booklet

Comments (child became ill, refused, you felt test was invalid [indicate why], etc.)____

____

____

For all these items a child is allowed a second trial if he does not perform correctly on the first trial. Write down your notes for the first trial before going on to the second trial.

If a child doesn't respond or says he can't do it, encourage once and score his first trial. Then, if he still hasn't responded correctly, repeat the instructions for him (trial 2) and encourage once (if necessary).

Stop the test after two consecutive items (4 trials) in which the child doen not respond. Also stop test if child failed items 1-4 (8 trials).

Time started ______________

Time stopped ______________

1. Walking Backwards

Go to one side of the room, allowing about 9 feet of clear floor space behind you.

Start timing.

- NOW WATCH ME WALK BACKWARDS LIKE THIS. Take 6 or 7 strides backwards covering 6 to 7 feet. Do not take "toe to heel" steps. Do not use arms for balance . Make sure the child watches your feet.
- NOW I WANT YOU TO WALK BACKWARDS LIKE I JUST DID.
- Lead the child to the starting point and urge, YOU TRY IT.

If, on either trial, child doesn't respond, encourage, then score.

Record the child's first response below.

If the child didn't respond, walked less than 5 steps, shuffled, or had poor balance, say THAT'S FINE. TRY IT AGAIN AND SEE IF YOU CAN WALK BACKWARDS EVEN BETTER THIS TIME (do not demonstate). Encourage if necessary. Record child's second response.

Child's Response	1st	2nd
a. Number of steps taken backwards (up to 5)		
b. Are child's feet off the floor when taking the steps	Y N	Y N
c. Are child's arms waved obviously for balance as he walks backwards	Y N	Y N
	DK-R-NR	DK-R-NR

(Item passed = 5, Y, N)
Did child pass item? Y N

2. Walking on Tiptoe

Go to one side of the room and say,

- NOW I WANT TO SEE IF YOU CAN WALK ON YOUR TIPTOES LIKE THIS. Demonstrate by walking 6 to 8 steps on tiptoes covering 4 feet. Make sure child is watching your feet.

- TRY IT AND SHOW ME HOW WELL YOU CAN DO IT. If on either trial, child doesn't respond, encourage then score.

Record the child's first response below.

If the child does not respond, takes less than 5 steps, touches his heels to the floor, or does not tiptoe 2 feet in distance say, O.K. LET'S TRY IT AGAIN AND SEE IF YOU CAN WALK ON TIPTOES EVEN BETTER THIS TIME. Encourage if necessary. Record second response.

Child's Response	1st	2nd
a. Number of steps taken on tiptoe (up to 5)		
b. Are child's heels off the floor	Y N	Y N
c. Did child tiptoe at least 2 feet in distance	Y N	Y N
	DK-R-NR	DK-R-NR

(Item passed = 5, Y, Y)
Did child pass item? Y N

3. Walking a Straight Line Forward

Stretch out the 9-foot tape full length on the floor, away from the walls and furniture and fasten it to the floor. Take the child to one end of the tape and say,

- WATCH ME WALK ALONG THIS LINE. (Walk entire length of tape without stepping off).

- LET'S SEE HOW WELL YOU CAN WALK ALL THE WAY ALONG THIS LINE WITHOUT STEPPING OFF (point to the tape). BE VERY CAREFUL NOW AND DON'T STEP OFF THE LINE AT ALL.

If the child does not respond, encourage then score.

If the child does not respond, does not walk entire length of the tape or takes one or more steps that are completely off the tape the first time say, O.K. LET'S TRY IT AGAIN AND SEE IF YOU WALK THE WHOLE LINE EVEN BETTER THIS TIME (do not demonstrate). Encourage if necessary. Record 2nd response.

Child's Response	1st	2nd
a. Child walked entire length of tape	Y N	Y N
b. Number of steps off the tape		
	DK-R-NR	DK-R-NR

(Item passed = Y, 0)
Did child pass item? Y N

4. Standing on One Foot

Get watch and walk with the child to the center of the room, out of reach of walls and furniture. While facing the child, stand on one foot, lifting the other foot off the floor by bending the leg at the knee with the sole of the foot facing back. Say,

- SEE WHAT I'M DOING? I'M STANDING ON ONE FOOT WITHOUT HOPPING. (Put foot down). WHEN I SAY GO YOU STAND ON ONE FOOT LIKE I DID. LET'S SEE HOW LONG YOU CAN DO IT. READY? GO.

If, on either trial, child does not respond, encourage once then score. Time the child once the child assumes this position. Stop timing when his foot touches the floor and record his first response below. It does not matter which foot the child stands on.

If the child stands still on his foot for 10 seconds say, THAT'S FINE, record the score and go to the next item.

If the child starts hopping, stop timing, stop child and go to 2nd trial.

If the child stands on his foot for less than 10 seconds say, THAT'S FINE. NOW LET'S SEE YOU STAND ON THE SAME FOOT A LITTLE LONGER. READY? GO. Encourage if necessary. Score 2nd trial.

If the child starts to stand on the other foot stop him by saying, USE THE SAME FOOT AS BEFORE.

Child's Response	1st	2nd
Number of seconds child stood still on one foot (up to 10)		
	DK-R-NR	DK-R-NR

* Stop test if child did not pass at least one of the first four items (1 - 4).

(Item passed = 10)
Did child pass item? Y N

5. Standing on Other Foot

Stay in the center of the room. Say,

- NOW LET'S SEE HOW LONG YOU CAN STAND ON YOUR OTHER FOOT WITHOUT HOPPING (do not demonstrate). READY? GO.

If the child starts to use the same foot as on the previous item, say, USE YOUR OTHER FOOT, NOT THE SAME ONE AS BEFORE. Point to the foot he is supposed to stand on.

If the child, on either trial, does not respond, encourage once, then score.

If the child stands on his foot for 10 seconds say, THAT'S FINE, record the score, and go to the next item.

If the child starts hopping, stop timing, stop child and go on to the 2nd trial.

Record the first response.

If the child stands on one foot for less than 10 seconds say, THAT'S FINE. NOW LET'S SEE YOU STAND ON THE SAME FOOT A LITTLE LONGER. READY? GO.

If in the second trial the child starts to stand on the same foot as for item 4, stop him by saying, USE THE SAME FOOT AS BEFORE.

Child's Response	1st	2nd
Number of seconds child stood still on one foot (up to 10)		
	DK-R-NR	DK-R-NR

(Item passed = 10)

6. Skipping

Take the child to a side of the room where there are 10 to 12 feet of clear space ahead of him and say,

● LET'S SEE IF YOU CAN SKIP LIKE THIS. (Demonstrate by skipping 6 steps. Make sure child is watching). SHOW ME HOW YOU DO IT. GO AHEAD.

Record the child's first response below.

If, on either trial, child does not respond, encourange then score.

If on the first trial the child refuses or does not skip correctly say, O.K. NOW LET'S TRY IT AGAIN AND SEE IF YOU CAN SKIP EVEN BETTER THIS TIME. READY? GO (record child's response).

Child's Response	1st	2nd
a. Child skips 4 or more times using alternate lead feet	Y N	Y N
b. Child shuffles using one lead foot	Y N	Y N
c. Child hops on 1 foot	Y N	Y N
d. Child runs, walks, gallops, etc.	Y N	Y N
	DK-R-NR	DK-R-NR

(Item passed = Y, N, N, N)

*Stop timing

NUMBER READINESS

Materials needed: 3 comparative cards
numeral flash cards
sequence card
7 wooden cubes
child's pencil

Comments (child became ill, refused, test was invalid (explain) etc.)

Time Started ____________

Time Stopped ____________

Stop test if child does not respond at all to 3 consecutive items.

IQ/Rep per item

1. Counting

- NOW WE ARE GOING TO TALK ABOUT NUMBERS. DO YOU KNOW HOW TO COUNT? COUNT FOR ME AS FAR AS YOU CAN GO.

If child does not respond, repeat once by saying:

I'LL BET YOU CAN DO IT. COUNT AS FAR AS YOU CAN GO.

Stop child at 20. If child wants to start over (s)he may do so.

Child's Response	Codes
	DK-R-NR

2. Comparisons IQ/Rep per sub-item

Put comparative house card in front of child. Do not point.

- LOOK AT THIS PICTURE. ONE HOUSE IS LARGE AND ONE HOUSE IS SMALL WHICH HOUSE IS LARGE?

If the child doesn't respond, repeat once by saying: WHICH HOUSE IS LARGE?

Take away house card and put down pot card.

- NOW LOOK AT THIS. ONE POT HAS MORE FLOWERS AND ONE POT HAS LESS FLOWERS. WHICH POT HAS LESS?

If child doesn't respond, repeat once by saying: WHICH POT HAS LESS?

Take away pot card and put down worm card.

- LOOK HERE. ONE WORM IS LONG AND ONE WORM IS SHORT. WHICH WORM IS LONG?

If child doens't respond, repeat once by saying: WHICH WORM IS LONG?

Child's Response	Scores
picked larger house	Y N DK-R-NR
picked less flowers	Y N DK-R-NR
picked long worm	Y N DK-R-NR

3. Recognize Numbers IQ/Rep (1st number only)

Put number flash cards in random order. Hold up first card and ask.

- TELL ME WHAT THIS NUMBER IS.

Hold up each card for a maximum of 5 seconds.

If the child doesn't respond to the first number within 5 seconds, repeat once (first number only) by saying:

> I'LL BET YOU CAN DO IT. TELL ME WHAT THIS NUMBER IS. (Give additional 5 seconds). Whether or not child responds, go on to next number. Stop after 5 tally marks in DK-R-NR. Make a tally mark for each number as child responds. Write totals after completion of test.

Number Correct Responses	Number Wrong Responses	Number DK-R-NR Responses
Total______	Total______	Total______

4. Sequence IQ/Rep per sub-item

Put the sequence card in front of child. Do not point.

- LOOK AT THIS PICTURE. POINT TO THE CHILD WHO IS SECOND IN LINE.

If the child doesn't respond on any of the three, repeat question. Score response.

- NOW POINT TO THE CHILD WHO IS THIRD IN LINE. Repeat if necessary.
- POINT TO THE CHILD WHO IS FIRST IN LINE. Repeat if necessary.

Child's Response	Score
Second	Y N DK-R-NR
Third	Y N DK-R-NR
First	Y N DK-R-NR

IQ/Rep per item

5. Assign Number

Place six wooden cubes in a group in front of child (slightly off to side). Place numbers cards (5,6,7,8) in group on other side.

- HOW MANY BLOCKS DO I HAVE HERE? FIND THE NUMBER THAT TELLS ME HOW MANY BLOCKS ARE HERE.

If child does not respond, repeat once.

Child's Response	Score
	Y N DK-R-NR

6. Print Numbers IQ/Rep

● CAN YOU WRITE YOUR NUMBERS?

Place next (blank) page in front of child and give him/her a child's pencil.

● WRITE THE NUMBERS (point to blank space) STARTING WITH ONE AND GOING TO TEN.

If child doesn't respond repeat once. If he doesn't respond to second question, circle the codes.

Circle all recognizable numbers after test. Enter below.

Child's response	Score
	DK-R-NR

IQ/Rep/Probe

7. Count Blocks

Place 7 wooden cubes in front of child.

● HOW MANY BLOCKS ARE HERE?

If child doesn't respond, repeat once. If child holds up fingers, probe with HOW MANY IS THAT?

Score child's final verbal answer, not his/her method of counting.

Child's response	Score
	Y N DK-R-NR

OPPOSITE ANALOGIES

Comments (child became ill, refused, etc.) ________________________________

____

____

Materials needed: interview booklet

Time started ____________

Time stopped ____________

IQ/Rep per item
except 1 & 2

For each item give a slight vocal stress to the underlined word but do not use gestures to illustrate the item content.

Time started

1. Say,

- I AM GOING TO SAY SOMETHING, AND I WANT TO SEE IF YOU CAN FINISH IT WITH A WORD THAT MEANS JUST THE OPPOSITE OF WHAT I SAY. LISTEN. THE SUN IS HOT, AND ICE IS ____________ WHAT?

Record the child's response below.

If the child does not respond with the word "cold" or an acceptable alternative say, YOU SHOULD SAY COLD BECAUSE COLD IS THE OPPOSITE OF HOT. Then repeat, THE SUN IS HOT, AND ICE IS COLD. YOU SEE HOW WE DO IT?

Child's Response	Codes
	DK-R-NR

(Item passed = cold, cool, chilly, frosty, frigid, freezing) Y N

2. NOW TRY THIS ONE. I THROW THE BALL UP, AND THEN IT COMES ________ WHAT?

If the child gets the idea and says "down" say, THAT'S FINE. NOW YOU KNOW HOW TO DO IT. LET'S TRY SOME MORE.

Record the child's response below.

If he's wrong or doesn't respond, say, DOWN, BECAUSE IT IS JUST THE OPPOSITE OF UP, and repeat the entire sentence: I THROW THE BALL UP, AND THEN IT COMES DOWN.

If the child fails items 1 and 2 discontinue the test. Otherwise proceed with item 3, and give no help on items 3-9. Discontinue after three consecutive failures. Repeat an item once if the child does not respond. If child offers two answers and one is correct, then he passes the item (i.e., "ice is cold and wet").

Child's Response	Codes
	DK-R-NR

(Item passed = down) Y N

IQ/Rep per item
except 1 & 2

3. AN ELEPHANT IS BIG, AND A MOUSE IS _______.

Child's Response	Codes
	DK-R-NR

(Item passed = little, small, tiny, wee, teeny-weeny) Y N

4. RUNNING IS FAST, AND WALKING IS _______.

Child's Response	Codes
	DK-R-NR

(Item passed = slow) Y N

5. COTTON IS SOFT, AND ROCKS ARE _______.

Child's Response	Codes
	DK-R-NR

(Item passed = hard, solid, firm)
Y N

6. A LEMON IS SOUR, AND CANDY IS ______.

Child's Response	Codes
	DK-R-NR

(Item passed = sweet) Y N

7. FEATHERS ARE LIGHT, AND STONES ARE ______.

Child's Response	Codes
	DK-R-NR

(Item passed = heavy, weighty, hefty) Y N

8. SYRUP IS THICK, AND WATER IS ______.

Child's Response	Codes
	DK-R-NR

(Item passed = thin) Y N

9. SANDPAPER IS ROUGH, AND GLASS IS ______.

Child's Response	Codes
	DK-R-NR

(Item passed = smooth, sleek, slick, glossy, slippery, shiny) Y N

Be sure to mark time stopped

DRAW A CHILD

Materials needed: child's pencil
test booklet

Comments (child became ill, refused, you felt test was invalid (indicate why) etc.)

____

____

____

Time Started ____________

Time Stopped ____________

DRAW-A-CHILD Directions

Place the blank page facing the child with the directions facing you. If the child is a boy, ask him to draw a boy; if a girl, ask her to draw a girl. Say,

- LET'S SEE YOU DRAW A BOY (GIRL) ON THIS PAGE (point to page). DRAW THE BEST PICTURE YOU CAN. BE SURE TO MAKE ALL OF HIM (HER).

If the child hesitates, say, I'M SURE YOU CAN MAKE A PICTURE OF A BOY (GIRL). TRY TO MAKE IT RIGHT HERE (point to the center of the page). If the child still refuses to draw, says "I can't." or does not respond, record this response in the box below.

If the child asks questions about how to make it say, WHATEVER WAY YOU THINK. JUST MAKE THE BEST PICTURE OF A BOY (GIRL) THAT YOU CAN.

Turn the page around if the child starts to draw upside-down. Don't let the child erase his entire picture; he may erase though in the process of drawing.

When the child stops drawing say, IS IT ALL DONE?

If the child thinks he/she has spoiled his drawing and insists on a second trial, the child may draw on the back page. Label body parts only of the child volunteers the information.

If the child has not finished after five minutes say, TRY TO FINISH THE BOY (GIRL) NOW.

When the child has finished, make some positive comments about his/her drawing.

Codes
DK - R - NR

TESTING CONDITIONS

Circle appropriate statements

1. Environmental Conditions

    1. No problems → go to Administration.
    2. Problems with testing area. Describe______________________

        ____

    3. Child disrupted during testing. Describe__________________

        ____

2. Administration

    1. No problems → go to Materials.
    2. Test administrator procedural errors. Describe____________

        ____

    3. Tests given out of sequence.

3. Materials

    1. No problems → go to Child Performance.
    2. Problems with test materials. Describe____________________

        ____

4. Child Performance

    1. No problems → go to next page.
    2. Child had difficulty speaking or understanding English.
    3. Child inattentive, restless, difficult to control. Describe

        ____

        ____

    4. Child would not respond or refused to continue. Describe.

        ____

    5. Child had difficulty due to physical condition. Describe.

        ____

    6. Special child related problems. Describe. ______________

        ____

CHILD RATINGS

Circle appropriate statements

A. Attentiveness

1. Attentive, involved, responsive.
2. Somewhat inattentive and uninvolved.
3. Easily distracted, must be urged to pay attention.

B. Emotionality

1. Actively enjous task, enthusiastic.
2. Matter of fact/casual about, but generally involved.
3. Appears distressed, or expresses dislike.

C. Persistence

1. Very persistent, difficult items lead to redoubled effort.
2. Some persistence, doesn't give up without trying.
3. Little persistence, gives up quickly.

D. Response Speed

1. Responds quickly to instructions, no hesitation.
2. Some deliberation, but response generally not slow.
3. Often slow to respond.

E. Talkativeness

1. Very talkative (e.g., provides many elaborations).
2. Average amount of verbal expression.
3. Not talkative, gives minimal verbal response.

F. Speech Comprehensibility

1. Child's speech not at all difficult to understand.
2. Child's speech somewhat difficult to understand (specify).
3. Child's speech extremely difficult to understand (specify).

G. Initial Reaction

1. Child quickly adapted to test situation.
2. Child was somewhat hesitant in the beginning.
3. Child was generally resistive and uncomfortable.

H. Tester Reaction

1. Enjoyed testing this particular child a great deal.
2. Found testing this particular child somewhat enjoyable.
3. Found little enjoyment in testing this particular child.

Put any general comments on next page.

Session Started: ________

Session Stopped: ________

APPENDIX E

Child Test Battery
(Fall 1979)

CHILD TEST BATTERY

NTS Research Corporation
Durham, North Carolina

Under contract to:
Administration for Children, Youth, and Families
Department of Health, Education, and Welfare

Fall 1979

Tests

Block Building. 1
Basic Information 5
Number Readiness. 9
Verbal Memory 13
PIPS. 15

Conceptual Grouping . . .25
Reading Readiness 32
Verbal Fluency. 36
Pictorial Memory. 40
Draw-A-Child. 41

Materials

- 12 1" cubes
- 4 color cards
- shape card
- penny, nickel, dime
- 3 comparative cards
- number flash cards
- parade sequence card
- 16 PIPS child cards
- 7 PIPS toy cards

- 12 CG Blocks
- 5" x 8" white card
- 4 word cards
- letter flash cards
- 6 sequence cards
- stopwatch
- pm card
- child's pencil

Did you mark "Session Started"?

IQ/1 Enc per trial
Trial 2 if necessary

BLOCK BUILDING

Materials Needed: 12 1-inch cubes.

Time Started: ____________

Make sure you are working on a flat, hard surface.

Build models in front of child. Leave enough room (8 inches) between child and model for child to build with his blocks.

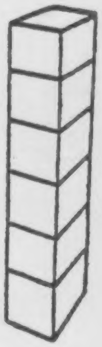
The models are left standing during the child's attempts. If the child knocks down the model, rebuild it.

Don't hesitate long after the child responds or he will think he's expected to keep building.

1. Tower

Trial 1.

● SEE THESE BLOCKS WE HAVE TO PLAY WITH? WATCH I AM MAKING A BIG TALL TOWER. (Build 6 block tower.) LET'S SEE IF YOU CAN MAKE A TOWER JUST LIKE IT RIGHT HERE. (Point to space between model and child. Give child remaining blocks).



If the child does not respond, encourage once by saying:
● I'LL BET YOU CAN DO IT.

If the child puts blocks on or against the model, say:
● NO, MAKE YOUR OWN TOWER RIGHT HERE (point). (counts as encouragement).

If the child accidently knocks over his blocks while building, encourage the child to rebuild by saying:
● GO AHEAD AND FINISH IT. (counts as encouragement for same trial. If child doesn't respond to encouragement, score his original tower.)

If the child is putting on the 4th block which cause the tower to tumble, score "3" as that was the number in the stable tower. Blocks Blocks don't have to be lined up perfectly but they must be stable.

Trial 2.

If the child did not respond or successfully make a 6-block tower on Trial 1, scramble the child's blocks and say:
● LET'S TRY AGAIN. MAKE ME A(NOTHER) TOWER JUST LIKE THIS ONE (point to model).

(See instructions for Trial 1)

Child's Response	1st	2nd
# of blocks in stable tower		
	DK-R-NR 9	DK-R-NR 9

1. Tester Name________________________ ____________________

2. Location of Session 01 Head Start Location
02 Other (describe) ____________________

3. Date of Session ________/________/________
Month Day Year

4. Time of Session 01 Morning
02 Afternoon
03 Evening

5. Session 01 Initial Session
02 2nd Attempt

6. Parent During Session 01 Not Present
02 Present

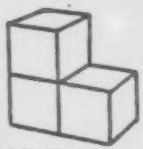
Trial 2 if necessary

2. Chair

Trial 1. Scramble the blocks and say,

● NOW LET'S SEE IF YOU CAN MAKE A NICE CHAIR JUST LIKE THIS.

About 8 inches in front of the child place 2 blocks side by side. Then place 3rd block on top (Child sees the profile of the chair, as does tester).



● SEE THE CHAIR I MADE? YOU MAKE ANOTHER ONE JUST LIKE IT RIGHT HERE (point to the space between the model and the child and give the child remaining 9 blocks).

If the child doesn't respond, encourage once, by saying:
● I'LL BET YOU CAN DO IT.

If the child put blocks on or beside the model say:
● NO, YOU MAKE YOUR OWN CHAIR RIGHT HERE (point to the space). Counts as encouragement.

If the child accidently knocks over his blocks while building, encourage him to rebuild by saying:
● GO AHEAD AND FINISH IT. (Counts as encouragement for same trial. If child doesn't respond to encouragement, score original chair.)

Trial 2. If the child did not respond or make the block chair correctly (base blocks have to be touching or less than 1/4" apart) scramble his blocks and say:

● LET'S TRY IT AGAIN. MAKE ME A(NOTHER) CHAIR JUST LIKE THIS (point to the model).

(See instructions for Trial 1)

Child's Response:	1st		2nd	
	Yes	No	Yes	No
a. 2 correct blocks (horizontal or vertical)	1	2	1	2
b. Correct placement of third block and chair faces same direction as model	1	2	1	2
	DK-R-NR 99		DK-R-NR 99	

Stop if child didn't score "6" on item 1 or at least one "Yes" on item 2.

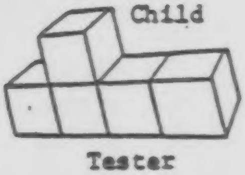
Trial 2 if necessary

3. Building

Scramble the Blocks and say:

Trial 1. ● LET'S MAKE A BUILDING LIKE THIS.

Place four blocks in a row, touching each other on the sides and place a fifth block on the second block from the child's right (see below).



● SEE MY BUILDING? YOU MAKE ANOTHER ONE JUST LIKE IT RIGHT HERE (point and give the child remaining 7 blocks).

If child doesn't respond, encourage once by saying:
● I'LL BET YOU CAN DO IT.

If the child put blocks on or beside the model say:
● NO, MAKE YOUR OWN BUILDING RIGHT HERE (point). (Counts as encouragement).

If the child accidently knocks over his blocks while building, encourage him to rebuild by saying:
● GO AHEAD AND FINISH IT. (Counts as encouragement for same trial. If child doesn't respond to encouragement, score original building.)

Trial 2. If the child did not respond or make the exact building (i.e., base blocks touching or no more than 1/4" apart and correct placement of fifth block) scramble the blocks and say:

● LET'S TRY AGAIN. MAKE ME A(NOTHER) BUILDING JUST LIKE THIS ONE (point to model).

(See instructions for Trial 1)

Child's Response	1st		2nd	
	Yes	No	Yes	No
a. Correct base of 4 blocks	1	2	1	2
b. Top block is placed on the second block from the child's right (regardless of number of blocks in the base).	1	2	1	2
	DK-R-NR 99		DK-R-NR 99	

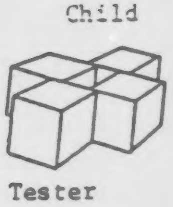
Stop if child didn't score at least one "yes" on item 2 or item 3.

IQ/1 Enc per trial
Trial 2 if necessary

4. House

Scramble the blocks and say,

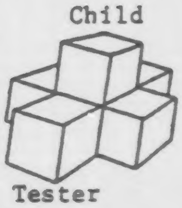
● NOW LET'S SEE IF YOU CAN MAKE A HOUSE JUST LIKE THIS. SEE, I'M MAKING THE WALLS THIS WAY.



Place 4 blocks before the child as shown below (with right and left block indented slightly). Pause 3 seconds and say:

● AND THEN I'M GOING TO PUT THE ROOF ON LIKE THIS

Place the fifth block over the center space as shown.



● YOU MAKE ANOTHER ONE JUST LIKE MINE (give the child remaining 7 blocks).

If child doesn't respond, encourage once by saying:
● I'LL BET YOU CAN DO IT

If the child puts blocks on or beside model say:
● NO, YOU MAKE YOUR OWN HOUSE RIGHT HERE (point). (Counts as encouragement.)

If the child accidently knocks over his blocks while building, encourage the child to rebuild by saying:
● GO AHEAD AND FINISH IT. (Counts as encouragement for same trial. If child doesn't respond to encouragement, score original house.)

Trial 2. If the child did not respond or build it like the model, score his first house, scramble the child's blocks and say:

● LET'S TRY AGAIN. MAKE ME A(NOTHER) HOUSE JUST LIKE THIS ONE (point) to your model).

(See instructions for Trial 1)

Child's Response	1st		2nd	
	Yes	No	Yes	No
a. Correct base	1	2	1	2
b. Correct placement of top block	1	2	1	2
c. 4-block base is built with no space between the four blocks, or, four blocks are placed irregularly but support the roof.	1	2	1	2
	DK-R-NR 999		DK-R-NR 999	

Time Stopped: ____________

Materials Needed: 4 color cards, shape card, penny, nickel, dime.

1. Age

● HOW OLD ARE YOU?

If child says, "I'm almost _____" clarify by saying:
● HOW OLD ARE YOU NOW?

To pass item child must give correct number of years verbally or with fingers. If child does both, record the verbal response. Check accuracy of response after test.

Child's Response	Score		
	Yes	No	DK-R-NR
	1	2	9

IQ/1 Rep per sub-item

2. Body Parts

● POINT TO YOUR HAND.

● POINT TO YOUR EYE.

● POINT TO YOUR ELBOW.

Child's Response	Score		
	Yes	No	DK-R-NR
Hand	1	2	9
Eye	1	2	9
Elbow	1	2	9

IQ/1 Rep (1st sub-item only)

3. Color Names

Hold up the red color card.

● WHAT COLOR IS THIS?

If child doesn't respond, repeat on 1st item only. Hold up card for maximum of 5 seconds. Proceed the same for blue, yellow and black cards (no repeats).

Child's Response	Score		
	Yes	No	DK-R-NR
red	1	2	9
blue	1	2	9
yellow	1	2	9
black	1	2	9

IQ/1 Rep/probe

4. Birthday

● TELL ME, WHEN IS YOUR BIRTHDAY?

If child doesn't respond, repeat. If child gives partial answer such as "just last week" or "at Easter" probe once with:

● WHAT MONTH IS (WAS) YOUR BIRTHDAY?

If child does not clarify response after the probe, score N.

Score "yes" if child has correct month. Check accuracy of response on front label.

Child's Response	Score		
	Yes	No	DK-R-NR
	1	2	9

01 January
02 February
03 March
04 April
05 May
06 June
07 July
08 August
09 September
10 October
11 November
12 December

Stop if DK-R-NR on all parts of 3 consecutive items.

5. Coins

Place coins as shown (each 4 inches apart) in front of child.

child

dime penny nickel

tester

● POINT TO THE PENNY.
Repeat if child doesn't respond.

● POINT TO THE NICKEL.
Repeat if necessary.

● POINT TO THE DIME.
Repeat if necessary.

Child's Response	Score		
	Yes	No	DK-R-NR
penny	1	2	9
nickel	1	2	9
dime	1	2	9

6. Shapes

Child
□ ○ ▽
Tester

Place shape card in front of child, as shown.

● LOOK AT THIS CARD.

● POINT TO THE CIRCLE.
If child doesn't respond, repeat once for each sub-item.

● POINT TO THE SQUARE.
Repeat if necessary.

● POINT TO THE TRIANGLE.
Repeat if necessary.

Child's Response	Score		
	Yes	No	DK-R-NR
circle	1	2	9
square	1	2	9
triangle	1	2	9

Stop if DK-R-NR on all parts of 3 consecutive items.

● LET'S SEE IF YOU CAN DO THIS. RAISE YOUR LEFT HAND.
Repeat if child doesn't respond.

If child raises both hands, score "No".

● NOW RAISE YOUR RIGHT HAND. Repeat if necessary.

Child's Response	Score		
	Yes	No	DK-R-NR
right	1	2	9
left	1	2	9

IQ/1 Rep

8. Days of Week

● THERE ARE SEVEN DAYS IN THE WEEK. THE FIRST DAY IS SUNDAY. TELL ME ALL OF THE DAYS OF THE WEEK STARTING WITH SUNDAY.

If child doesn't respond, repeat by saying:

● TELL ME ALL OF THE DAYS OF THE WEEK STARTING WITH SUNDAY.

If child rambles, stop after 10 rambling responses.

Child's Response

DK-R-NR
99

NTS Code	
#	☐
Seq.	☐

Time Stopped ________

Stop if DK-R-NR on all parts of 3 consecutive items.

NUMBER READINESS

Materials Needed: 3 comparative cards, numeral flash cards, sequence card, 7 wooden cubes, child's pencil

Time Started: ____________

1. Counting

● NOW WE ARE GOING TO TALK ABOUT NUMBERS. COUNT FOR ME AS FAR AS YOU CAN GO.

If child does not respond, repeat once by saying:
● I'LL BET YOU CAN DO IT. COUNT AS FAR AS YOU CAN GO.

If child asks about stopping before he hits 20, say:
● COUNT AS FAR AS YOU CAN GO. (Counts as repeat).

If child rambles, stop after 10 rambling responses.

– Stop child at 20. If child wants to start over (s)he may do so.

Child's Response

DK-R-NR
9999

NTS Code	
#	☐☐
Seq.	☐☐

IQ/1 Rep per sub item

2. Comparisons

Put comparative house cards in front of child. Do not point.
If child does something other than pointing (after the repeat) score DK-R-NR.
● LOOK AT THIS PICTURE. ONE HOUSE IS LARGE AND ONE HOUSE IS SMALL
WHICH HOUSE IS LARGE?

If the child doesn't respond, repeat once by saying:
● WHICH HOUSE IS LARGE?

Take away house card and put down cone card.

● NOW LOOK AT THESE ICE CREAM CONES. ONE CONE HAS MORE ICE CREAM AND ONE CONE HAS LESS ICE CREAM. WHICH CONE HAS LESS?

If child doesn't respond, repeat once by saying:
● WHICH CONE HAS LESS?

Take away cone card and put down pencil card.

● LOOK HERE. ONE PENCIL IS LONG AND ONE PENCIL IS SHORT. WHICH PENCIL IS LONG? *

If child doesn't respond, repeat once by saying:
● WHICH PENCIL IS LONG?

Child's Response	Score		
	Yes	No	DK-R-NR
picked large house	1	2	9
picked less ice cream	1	2	9
picked long pencil	1	2	9

Stop if child is under 4

3. Recognize Numbers

Put number flash cards in random order. Hold up first card and ask:

● TELL ME WHAT THIS NUMBER IS.

Hold up each card for a maximum of 5 seconds.

If the child doesn't respond to the first number within 5 seconds, repeat once (first number only) by saying:

● I'LL BET YOU CAN DO IT. TELL ME WHAT THIS NUMBER IS. (Give additional 5 seconds). Whether or not child responds, go on to next number. Stop after 5 consecutive tally marks in DK-R-NR or "Wrong" (or combination). Make a tally mark for each number as child responds. Write totals after completion of item.

Number Correct Responses	Number Wrong Responses	Number DK-R-NR Responses
Total _______	Total _______	Total _______

IQ/1 Rep/1 Clarification

4. Count Blocks

Place 7 wooden cubes in front of child.

● NOW TELL ME, HOW MANY BLOCKS ARE HERE?

If child doesn't respond, repeat once. If child holds up fingers, clarify with:

● HOW MANY IS THAT? (If child doesn't give correct verbal answer score "No".)

Score child's final verbal answer, not his/her method of counting.

Child's Response	Score		
	Yes	No	DK-R-NR
	1	2	9

Stop test if DK-R-NR on all parts of 3 consecutive items.

IQ/1 Rep per sub-item

5. Sequence

Put the sequence card in front of child. Do not point.

● LOOK AT THIS PICTURE. POINT TO THE CHILD WHO IS SECOND IN LINE.

If the child doesn't respond on any of the three, repeat question. Score response. If child doesn't point, score DK-R-NR.

● NOW POINT TO THE CHILD WHO IS THIRD IN LINE. Repeat if necessary.

● POINT TO THE CHILD WHO IS FIRST IN LINE. Repeat if necessary.

Child's Response	Score		
	Yes	No	DK-R-NR
Second	1	2	9
Third	1	2	9
First	1	2	9

IQ/1 Rep

6. Assign Number

Place six wooden cubes in a group in front of child (slightly off to side). Place number card (5,6,7,8) on other side.

● LOOK AT THESE BLOCKS. (Put your hand over blocks).

Sweep same hand over number card and say:
● POINT TO THE NUMBER THAT TELLS HOW MANY BLOCKS ARE HERE. (Return hand to blocks).

If child does not respond by pointing, repeat once by saying:
● POINT TO THE NUMBER THAT TELLS HOW MANY BLOCKS ARE HERE.
If child still doesn't point to a number, score DK-R-NR.

Child's Response	Score		
	Yes	No	DK-R-NR
	1	2	9

Time Stopped: ______________

Stop test if DK-R-NR on all parts of 3 consecutive items.

Time Started: ___________

Read items 1-4 at a rate of about 1 word per second. Read sentences in items 5 and 6 slowly and clearly. Do not repeat any items.

If child doesn't respond, encourage once by saying:
- ● I'M SURE YOU CAN SAY THOSE WORDS.

If the child starts repeating the words before you have finished, say:
- ● WAIT - and continue with the item. After the item remind the child:
- ● REMEMBER TO WAIT UNTIL I HAVE FINISHED SAYING ALL THE WORDS BEFORE YOU START TO ANSWER.

Record only those responses child gave after you finished saying the words.

Record all responses in sequence given by child.

● NOW I'M GOING TO SAY SOME WORDS AND I WANT TO SEE HOW MANY OF THEM YOU CAN SAY AFTER ME. WAIT UNTIL I HAVE FINISHED SAYING ALL THE WORDS BEFORE YOU START. SAY THE WORDS JUST THE WAY I DO. LISTEN. (Make sure you have child's attention).

. ● HERE'S WHAT I WANT YOU TO SAY: TOY ---- CHAIR ---- LIGHT.

Child's Response
NTS Code:

DK-R-NR
99

2. ● NOW SAY: DOLL ---- COAT ---- DARK.

Child's Response
NTS Code:

DK-R-NR
99

3. ● NOW SAY: AFTER ---- COLOR ---- FUNNY ---- TODAY.

Child's Response

NTS Code:

DK-R-NR
99

4. ● NOW SAY: AROUND ---- BECAUSE ---- UNDER ---- NEVER.

Child's Response

NTS Code:

DK-R-NR
99

5. ● NOW SAY: THE BOY SAID GOODBYE TO HIS DOG EVERY MORNING BEFORE HE WENT TO SCHOOL.

Child's Response

NTS Code:

DK-R-NR
99

6. ● NOW SAY: THE GIRL TIED A PRETTY PINK RIBBON ON HER DOLL BEFORE SHE WENT OUT.

Child's Response

NTS Code:

DK-R-NR
99

Stop if DK-R-NR is circled for 3 consecutive items.

PRESCHOOL INTERPERSONAL PROBLEM-SOLVING TASK (PIPS)

Materials Needed: category sheets, 8 cut-out male pictures, 8 cut-out female pictures, 7 cut-out toys

Order of toys: truck, shovel, kite, swing, drum, boat, tricycle.

When to probe:
a) DK-R-NR
b) repeated answer
c) answer that doesn't solve the problem

5 probes:
a) say - WHAT CAN "A" SAY TO GET A CHANCE TO PLAY...
b) do - WHAT CAN "A" DO TO GET A CHANCE TO PLAY...
c) recap responses - NOW YOU'VE ALREADY SAID...
d) classify responses - DOING _____ IS LIKE DOING _____ IS THERE SOMETHING ELSE "A" COULD...
e) restate the story root - REMEMBER "A" WANTS TO HAVE A CHANCE TO PLAY WITH THIS TOY. WHAT CAN "A"...

Clarifying:
a) TELL ME WHAT YOU MEAN (once per response box-up to 3 per story).

1 clarification per box

Time Started: ____________

1. Truck

● I'VE GOT SOME PICTURES AND I'M GOING TO TELL YOU SOME STORIES ABOUT CHILDREN. LET'S PRETEND THAT ALL THE CHILDREN ARE __________ YEARS OLD. O.K.? (insert child's age)

● HERE'S JOHNNY (MARY).

Place the picture upright in full view of the child.

● HERE'S JIMMY (SUE).

Place the picture next to Johnny (Mary).

● CAN YOU TELL ME WHAT TOY THIS IS?

Hold up the first toy (truck) and let the child respond. If the child does not correctly identify the toy say, THIS IS A TRUCK.

Place the toy picture so it overlaps that of Johnny (Mary).

● NOW, JOHNNY (MARY) (point) HAS BEEN PLAYING WITH THIS (never say "his") TRUCK (point) FOR A LONG TIME AND JIMMY (SUE) (point) WANTS A CHANCE TO PLAY WITH IT. BUT JOHNNY (MARY) KEEPS ON PLAYING WITH IT.

● (Memory cue): WHO'S BEEN PLAYING WITH THE TRUCK FOR A LONG TIME? YOU CAN POINT. Let the child point and say, (THAT'S RIGHT.) JOHNNY (MARY) (point). WHO WANTS TO PLAY WITH IT? Let the child respond, and say, (THAT'S RIGHT). JIMMY (SUE) (point). If the child does not respond correctly to the memory cues, repeat the story.

The memory cue is only to assure that the child understands the story. It can, in subsequent stories, be shortened to, ● WHO HAS IT?, WHO WANTS IT? The tester can judge at what point in the test memory cues are no longer needed. The direction, YOU CAN POINT, is given because the child does not need to remember the names of characters. Names are presented for interest only.

1 clarification per box

● JIMMY (SUE) WANTS TO PLAY WITH THE TRUCK. WHAT CAN HE/SHE DO TO GET A CHANCE TO PLAY WITH THE TRUCK?

See the administration manual for relevant information regarding probing and recording responses.

Child's Response		Category	Int/Ext
		1-19/81-83	91/92
	DK-R-NR		
	DK-R-NR		
	DK-R-NR		

New Solution
Yes No

(THAT'S ONE WAY). NOW THE IDEA OF THIS GAME IS TO THINK OF LOTS OF WAYS TO GET A CHANCE TO PLAY WITH TOYS. O.K.?

1 clarification per box

Use different names in all the following items.

2. Shovel

● HERE'S ____(A)________.

Place the picture upright in full view of the child.

● HERE'S ____(B)________.

Place the picture next to (A).

● CAN YOU TELL ME WHAT TOY THIS IS?

Hold up the shovel and let the child respond. If the child answers incorrectly say, THIS IS A SHOVEL.

Place the shovel so it overlaps with (A).

● NOW, LET'S PRETEND THAT (A) HAS BEEN PLAYING WITH THIS SHOVEL ALL MORNING AND (B) WANTS A CHANCE TO PLAY WITH IT.

● (Memory cue): WHO HAS IT? WHO WANTS IT? (Use longer version if necessary.)

● (B) WANTS TO PLAY WITH THE SHOVEL. WHAT CAN HE/SHE DO TO GET A CHANCE TO PLAY WITH THE SHOVEL.

Child's Response		Category	Int/Ext
		1-19/81-83	91/92
	DK-R-NR		
	DK-R-NR		
	DK-R-NR		

New Solution
Yes No

If the child responds with a relevant solution, say,

● NOW YOU'VE GOT THE IDEA OF THE GAME. (NOW YOU'VE GOT TWO WAYS.)

If the child responded with a new solution on the first item but not the second, say,

● REMEMBER, THE IDEA OF THIS GAME IS TO THINK OF LOTS OF WAYS TO GET A CHANCE TO PLAY WITH TOYS.

Stop if child fails to give a new solution to 2 consecutive stories (6 boxes).

1 clarification per box

3. Kite

- HERE'S ____(C)____.

Place the picture upright in full view of the child.

- HERE'S ____(D)____.

Place the picture next to (C).

- CAN YOU TELL ME WHAT TOY THIS IS?

Hold up the kite and let the child respond. If the child answers incorrectly say, THIS IS A KITE.

Place the kite so it overlaps with (C).

- NOW, (C) HAS BEEN OUT IN THE YARD PLAYING WITH THIS KITE FOR A LONG TIME AND (D) THINKS HE WOULD LIKE TO PLAY WITH THE KITE.

Use a memory cue here if needed.

- WHAT CAN (D) (point to D) DO SO HE/SHE CAN HAVE A CHANCE TO FLY THE KITE (point to the kite)?

Child's Response		Category	Int/Ext
		1-19/81-83	91/92
	DK-R-NR		
	DK-R-NR		
	DK-R-NR		

New Solution
Yes No

Stop if child fails to give a new solution to 2 consecutive stories (6 boxes).

1 clarification per box

4. Swing

● HERE'S ____(E)____.

Place the picture upright in full view of the child.

● HERE'S ____(F)____.

Place the picture next to (E).

● CAN YOU TELL ME WHAT TOY THIS IS?

Hold up the swing and let the child respond. If the child answers incorrectly say, THIS IS A SWING.

Place the swing so it overlaps with (E).

● TODAY (F) WANTS TO USE THE SWING BUT (E) IS ALREADY ON IT.

Use a memory cue here if needed.

● WHAT CAN (F) (point to F) DO SO HE/SHE CAN HAVE A CHANCE ON THE SWING (point to the swing)?

Child's Response		Category	Int/Ext
	DK-R-NR	1-19/81-83	91/92
	DK-R-NR		
	DK-R-NR		

New Solution
Yes No

Stop if child fails to give a new solution to 2 consecutive stories (6 boxes).

1 clarification per box

5. Drum

- HERE'S ____(G)____.

Place the picture upright in full view of the child.

- HERE'S ____(H)____.

Place the picture next to (G).

- CAN YOU TELL ME WHAT TOY THIS IS?

Hold up the drum and let the child respond. If the child answers incorrectly say, THIS IS A DRUM.

Place the drum so it overlaps with (G).

- ONE DAY (G) WAS PLAYING WITH THIS DRUM AND HE/SHE WAS PLAYING WITH IT FOR A LONG TIME. (H) WANTED TO PLAY WITH IT.

Use a memory cue here if needed.

- WHAT CAN (H) (point to H) DO SO HE/SHE CAN GET TO PLAY WITH THE DRUM (point to the drum)?

Child's Response		Category	Int/Ext
		1-19/81-83	91/92
	DK-R-NR		
	DK-R-NR		
	DK-R-NR		

New Solution
Yes No

Stop if child fails to give a new solution to 2 consecutive stories (6 boxes).

1 clarification per box

6. Boat

- HERE'S ____(M)____.

  Place the picture upright in full view of the child.

- HERE'S ____(N)____.

  Place the picture next to (M).

- CAN YOU TELL ME WHAT TOY THIS IS?

  Hold up the boat and let the child respond. If the child answers incorrectly say, THIS IS A BOAT.

  Place the boat so it overlaps with (M).

- (M) HAS BEEN PLAYING WITH THIS BOAT FOR A LONG TIME AND (N) WANTS TO PLAY WITH IT.

  Use a memory cue here if needed.

- WHAT CAN (N) (point to N) DO SO HE/SHE CAN GET TO PLAY WITH THE BOAT (point to the boat)?

Child's Response		Category	Int/Ext
		1-19/81-83	91/92
	DK-R-NR		
	DK-R-NR		
	DK-R-NR		

New Solution
Yes No

Stop if child fails to give a new solution to 2 consecutive stories (6 boxes).

1 clarification per box

7. Tricycle

- HERE'S ____(R)____.

  Place the picture upright in full view of the child.

- HERE'S ____(S)____.

  Place the picture next to (R).

- CAN YOU TELL ME WHAT TOY THIS IS?

  Hold up the tricycle and let the child respond. If the child answers incorrectly say, THIS IS A TRICYCLE.

  Place the tricycle so it overlaps with (R).

- NOW, (R) HAS HAD THE TRICYCLE ALL MORNING AND (S) WANTS TO HAVE A CHANCE WITH IT.

  Use a memory cue here if needed.

- WHAT CAN (S) (point to S) DO SO HE/SHE CAN RIDE THE TRICYCLE (point to the tricycle)?

Child's Response		Category	Int/Ext
		1-19/81-33	91/92
	DK-R-NR		
	DK-R-NR		
	DK-R-NR		

New Solution
Yes No

Stop if child fails to give a new solution to 2 consecutive stories (6 boxes).

BREAK

Stop here to let the child have some physical activity. Use the ball or beanbag to play a game for two or three minutes. Before resuming the testing ask the child if he/she wants to go to the bathroom or get a drink of water.

CONCEPTUAL GROUPING

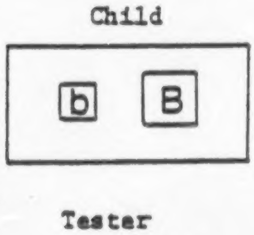
per sub-item

Materials Needed: 1 piece of cardboard (5" x 8"), and a set of 12 blocks: 6 squares and 6 circles--with each shape provided in three colors (red, yellow, blue) and two sizes per color.

Time Started: ____________

Place cardboard in front of child. Have blocks out of child's sight and reach. When introducing test, do not mention colors, shapes, or sizes. Don't pause long after child's response or child will think he's expected to do more. Accept any clearly indicated response (pointing for "pick-up" - picking up for "put on card").

1. Place blue squares exactly as shown.



● PICK UP THE LITTLE ONE AND GIVE IT TO ME.

Score		
Yes	No	DK-R-NR
1	2	9

Replace the block.

● NOW GIVE ME THE BIG ONE.

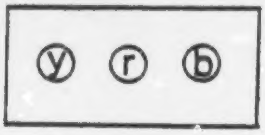
Score		
Yes	No	DK-R-NR
1	2	9

Replace the block. After the child has responded to both questions, confirm or correct his responses by saying:

● (YES) THIS IS THE LITTLE ONE (pointing), AND THIS IS THE BIG ONE (pointing).

2. Remove the 2 blue squares and place the small circles exactly as shown.

Child



Tester

Say,

● HAND ME THE RED ONE.

Score		
Yes	No	DK-R-NR
1	2	9

Replace the block the child selected.

● NOW GIVE ME THE YELLOW ONE.

Score		
Yes	No	DK-R-NR
1	2	9

Replace the block the child selected.

● FIND THE BLUE ONE AND GIVE IT TO ME.

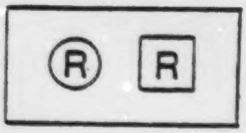
Score		
Yes	No	DK-R-NR
1	2	9

Replace the block. After the child has responded to all three questions. Say,

● (YES) THIS IS THE RED ONE (point), THIS IS THE YELLOW ONE (point) AND THIS IS THE BLUE ONE (point).

Stop test if DK-R-NR is scored on all parts of 2 consecutive items.

3. Remove the 3 small circles. Place the large red circle and square exactly as shown below. Child



Tester

Be sure the edge of the square is parallel to the edge of the cardboard. Say,

● FIND THE SQUARE ONE AND GIVE IT TO ME.

Score		
Yes	No	DK-R-NR
1	2	9

Replace the block the child selected.

● NOW GIVE ME THE ROUND ONE.

Score		
Yes	No	DK-R-NR
1	2	9

After he has responded to both questions. Say,

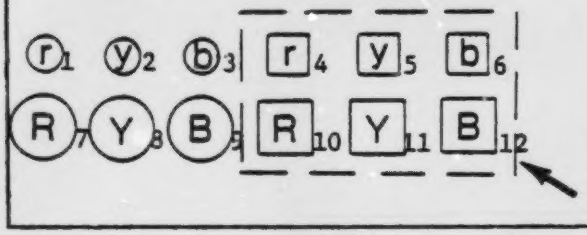
● (YES) THIS IS THE SQUARE ONE (point) AND THIS IS THE ROUND ONE (point).

Stop test if DK-R-NR is scored in all parts of 2 consecutive items.

4. All Squares

Scatter all of the 12 blocks randomly on the table before the child. Make certain that all the blocks are clearly visible and within the child's reach and that none are on the cardboard. Say,

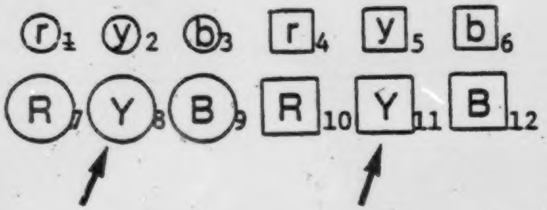
● NOW I HAVE SOME MORE TO SHOW YOU. SEE ALL OF THESE? FIND ALL THE SQUARE ONES AND PUT THEM RIGHT HERE ON THIS CARD (point). REMEMBER, PUT ALL THE SQUARE ONES OVER HERE (point to the card).

Child's Response	Score		
(put an X on the blocks the child put on the cardboard)	Yes	No	DK-R-NR
	1	2	9

5. Big, Yellow

Rescramble all the blocks and say,

● NOW FIND ALL THE BIG YELLOW ONES AND PUT THEM ON THE CARD. REMEMBER, FIND ALL THE BIG YELLOW ONES.

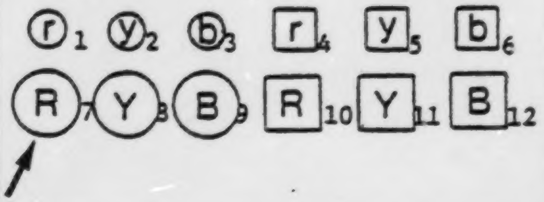
Child's Response	Score		
(put an X on the blocks the child put on the cardboard)	Yes	No	DK-R-NR
	1	2	9

Stop test if DK-R-NR is scored in all parts of 2 consecutive items.

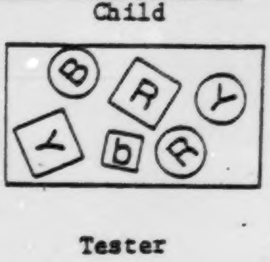
6. Big, Round, Red

Rescramble all the blocks and say.

● NOW SEE HOW MANY BIG ROUND RED ONES YOU CAN FIND. REMEMBER YOU'RE LOOKING FOR BIG ROUND RED ONES.

Child's Response	Score		
(put an X on the blocks the child pointed to)	Yes	No	DK-R-NR
	1	2	9

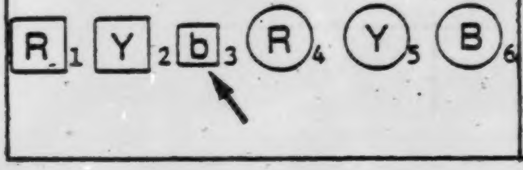
7. Place the small blue square and all the large blocks except the large blue square on the cardboard in a random fashion. Remove all other blocks from the child's reach.



Say,

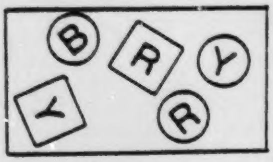
● WHICH ONE ON THE CARD DOES NOT GO WITH THE OTHER ONES ON THE CARD?

If child choses more than 1, mark the blocks and score "No".

Child's Response	Score		
(put an X on the block the child identified)	Yes	No	DK-R-NR
	1	2	9

Stop if DK-R-NR is scored on all parts of 2 consecutive items.

8. Clear the card and place all large blocks except large blue square on cardboard in random fashion. Put the rest of the scrambled blocks in fron of the child. Child



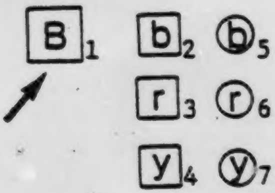
Tester

● ONE OF THESE (point to the scrambled blocks) GOES BEST WITH THE THINGS ON THE CARD. FIND IT AND PUT IT ON THE CARD.

If the child gets more than 1, mark the blocks and score No.

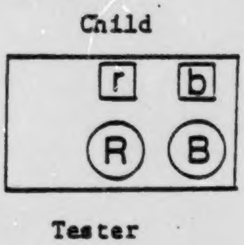
If the child selects a block on the card replace it and say,

● WHICH ONE OF THESE (point to scrambed blocks) GOES BEST WITH THE THINGS ON THE CARD? (counts as repeat) If child again selects block from card, circle DK-R-NR.

Child's Response	Score		
(put an X on the block the child identified)	Yes	No	DK-R-NR
	1	2	9

Stop test if DK-R-NR is scored in all part 2 consecutive items.

9. Remove the blocks from the cardboard. Arrange the large red and blue circles and small red and blue squares on the cardboard as shown (off-center). Scramble the other blocks and place them near child.



Say,

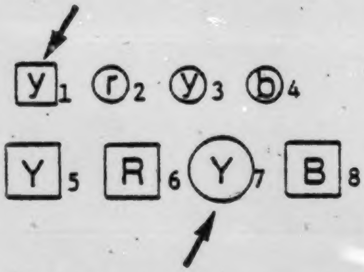
- TWO OF THESE HERE (point to the scrambled blocks) GO BEST WITH THE THINGS ON THE CARD. FIND BOTH OF THEM AND PUT THEM ON THE CARD.

If the child chooses more or less than 2 blocks remove chosen blocks, rescramble and say,

- REMEMBER, I ASKED YOU TO FIND 2. WHICH 2 FROM HERE (point) GO BEST WITH THE THINGS ON THE CARD? (counts as repeat) If this is child's final response mark blocks and score No.

If the child chooses a block on the cardboard replace it and say,

- WHICH 2 FROM HERE (point to the scrambled blocks) GO BEST WITH THE THINGS ON THE CARD? FIND THEM AND PUT THEM HERE ON THE CARD. (counts as repeat) If this is the child's final response, circle DK-R-NR.

Child's Response	Score		
(put an X on the blocks the child places on the cardboard)  	Yes	No	DK-R-NR
	1	2	9

Time Stopped: __________

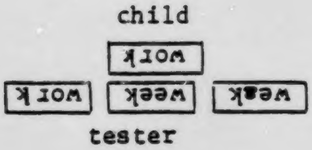
READING READINESS

Materials Needed: 4 word cards, alphabet flash cards, and 6 sequence cards.

Time Started: _________

1. Word Matching

Lay 3 word cards out in row in front of child as shown. Lay key card in front of row.



● I HAVE THREE WORDS HERE (point to row) AND ONE WORD HERE (point). POINT TO THE ONE HERE (point to row) THAT IS THE SAME AS THIS ONE (point to key card).

If the child doesn't respond or points to the key card, repeat once by saying:

● POINT TO THE ONE HERE (point to row) THAT IS THE SAME AS THIS ONE (point to key card). If child doesn't point, score DK-R-NR.

Child's response	Score		
child selected correct card	Yes 1	No 2	DK-R-NR 9

2. Identify Letter

Present alphabet flash cards, one at a time in random order. Hold each card up for a maximum of 5 seconds. For each letter, say:

● WHAT LETTER IS THIS?

If the child doesn't respond to the first letter within 5 seconds, repeat once (first letter only) by saying:

● I'LL BET YOU CAN DO IT. TELL ME THE NAME OF THIS LETTER. (Give child additional 5 seconds.)

Whether or not child responds, go on to next letter.

If child gives cards names other than letter (i.e., calls them numbers) mark response wrong.

Stop after 10 consecutive tally marks in wrong or DK-R-NR (or combination of wrong and DK-R-NR).

If, after the first five letters, the child is responding (C or W) you can use the shortened version:

● AND THIS ONE?

Always return to the full sentence after a DK-R-NR response.

Make a tally mark for each letter as child responds. Write total after completion of test.

Number Correct Responses	Number Wrong Responses	Number DK-R-NR
Total ☐☐	Total ☐☐	Total ☐☐

3. Sequence

Lay example (egg) sequence cards on table in front of child in 1 - 3 - 2 sequence.	child 1 - 3 - 2 tester
● LOOK AT THESE PICTURES (point and pause) THESE PICTURES ARE MIXED UP. THEY CAN BE PUT IN A ROW THE RIGHT WAY, LIKE THIS. Re-order in sequence (1-2-3 from child's view).	child 3 - 2 - 1 tester

● SEE FIRST THE EGG WAS WHOLE (point). THEN SOMEONE CRACKED IT (point). THEN THEY COOKED IT (point and pause).

Remove the first set, put out the apple set in 2 - 1 - 3 order.	child 2 - 1 - 3 tester

● THESE PICTURES ARE ALSO MIXED UP. NOW PUT THEM IN A ROW THE RIGHT WAY SO THEY TELL A STORY.

If child doesn't respond or stacks cards, (unstack, and) repeat once by saying:

- ● I'LL BET YOU CAN DO IT. PUT THESE PICTURES IN A ROW SO THAT THEY TELL A STORY.

● If child puts card in 1-2-3 or 3-2-1 order, ask. WHICH PICTURE COMES FIRST?

Child's Response	Score	
	Yes	No
child put cards in 3-2-1 or 1-2-3 sequence and named card [illegible] as first.	1	2
Child put cards in L → R sequence: child 3 - 2 - 1 tester	1	2

DK-R-NR
99

4. Recite Alphabet

● LET'S DO THE ALPHABET. SAY YOUR A,B,C's OUT LOUD FOR ME.

If the child doesn't respond, repeat once by saying:

● I'LL BET YOU CAN DO IT. SAY THE ALPHABET STARTING WITH A,B,C.

If the child asks to start again, (s)he may do so.

If child rambles, stop after 10 rambling responses.

Child's Response

1. ______
2. ______
3. ______
4. ______
5. ______
6. ______
7. ______
8. ______
9. ______
10. ______
11. ______
12. ______
13. ______
14. ______
15. ______
16. ______
17. ______
18. ______
19. ______
20. ______
21. ______
22. ______
23. ______
24. ______
25. ______
26. ______
27. ______
28. ______
29. ______
30. ______

DK-R-NR
9

NTS Code

# ☐☐

Seq. ☐☐

Time Stopped: ______________

Materials Needed: Stopwatch

Administer All Items.

Time Started ____________

1. Things to Eat

● NOW WE ARE GOING TO PLAY A DIFFERENT GAME. FIRST I WILL NAME SOME THINGS AND THEN IT WILL BE YOUR TURN. WAIT UNTIL I HAVE FINISHED BEFORE YOU START. LISTEN. LET'S SEE HOW MANY DIFFERENT THINGS TO EAT YOU CAN THINK OF BEFORE I SAY STOP. YOU KNOW, LIKE BREAD AND POTATOES. READY, GO. (Start watch, time for 20 sec.).

If the child waits for you to record each response before giving the next encourage once by saying:

● KEEP GOING I'LL WRITE THEM WHILE YOU TALK. (Keep timing.)

If after the first 6 seconds the child has given no responses, only 1 correct response, or only repeated the items you said, encourage once by saying:

● TRY TO TELL ME SOME OTHER THINGS TO EAT. (Keep timing.)

If the child gives 3 consecutive responses with the same key word (fried eggs, boiled eggs, scrambled eggs) encourage once by saying:

● WHAT OTHER THINGS TO EAT CAN YOU THINK OF? (Keep timing.)

If you don't understand a child's response write it phonetically and after the 20 seconds say:

● YOU SAID ____________. WHAT IS THAT? If child clarifies response write in clarification in parenthesis by original response.

In all cases wait out 20 seconds, then say:

● OK, STOP.

Child's Response	NTS Codes		
	# Edibles	☐	☐
	# Other	☐	☐

DK-R-NR
9999

2. Animals

● NOW LET'S SEE HOW MANY DIFFERENT ANIMALS YOU CAN THINK OF BEFORE I SAY STOP. YOU KNOW, LIKE CAT AND BEAR. READY GO. (Start watch, time for 20 seconds).

If after the first 6 seconds the child has given no responses, only 1 correct response, or only repeated the items you said, encourage once by saying:

● TRY TO TELL ME SOME OTHER ANIMALS. (Keep timing.)

If the child gives 3 consecutive responses with the same key word (big dogs, little dogs, black dogs) encourage once by saying:

● WHAT OTHER ANIMALS CAN YOU THINK OF? (Keep timing.)

If you don't understand a child's response write it phonetically and after the 20 seconds say:

● YOU SAID ___________. WHAT IS THAT? If child clarifies response write in clarification in parenthesis by original response.

If the child says "Whiskers" or "Spotty", after the 20 seconds say:

● WHAT KIND OF ANIMAL IS SPOTTY. If the child clarifies response, write clarification in parenthesis by original response.

In all cases wait out 20 seconds, then say:

● OK, STOP.

Child's Response	NTS Codes	
	# Animals	☐☐
	# Other	☐☐
	# Unidentified Proper Names	☐☐

DK-R-NR
9999

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● NOW TELL ME ALL THE THINGS TO WEAR THAT YOU CAN THINK OF BEFORE I SAY STOP. YOU KNOW, LIKE SHOES. READY GO. (Start watch, time for 20 seconds.)

If after the first 6 seconds the child has given no responses, only 1 correct response, or only repeated the items you said, encourage once by saying:

● TRY TO TELL ME SOME OTHER THINGS TO WEAR. (Keep timing.)

If the child gives 3 consecutive responses with the same key word (heavy coat, light coat, rain coat) encourage once by saying:

● WHAT OTHER THINGS TO WEAR CAN YOU THINK OF? (Keep timing.)

If you don't understand a child's response write it phonetically and after the 20 seconds say:

● YOU SAID____________. WHAT IS THAT? If child clarifies response write in clarification in parenthesis by original response.

In all cases wait out 20 seconds, then say:

● OK, STOP.

Child's Response	NTS Codes
	# Articles ☐☐
	# Other ☐☐

DK-R-NR
9999

4. Things to Ride

● NOW LET'S SEE HOW MANY DIFFERENT THINGS TO RIDE ON YOU CAN THINK OF BEFOE I SAY STOP. YOU KNOW, LIKE A BUS. READY GO. (Start watch, time for 20 seconds.)

If after the first 6 seconds the child has given no responses, only 1 correct response, or only repeated the items you said, encourage once by saying:

● TRY TO TELL ME SOME OTHER THINGS TO RIDE ON. (Keep timing.)

If the child gives 3 consecutive responses with the same key word (green bike, big bike, little bike) encourage once by saying:

● WHAT OTHER THINGS TO RIDE ON CAN YOU THINK OF? (Keep timing.)

If you don't understand a child's response write it phonetically and after the 20 seconds say:

● YOU SAID ___________. WHAT IS THAT? If child clarifies response write in clarification in parenthesis by original response.

In all cases wait out 20 seconds, then say:

● OK, STOP.

Child's Response	NTS Codes
	# Vehicles/ Animals ☐☐
	# Other ☐☐

DK-R-NR
9999

Time Stopped ___________

PICTORIAL MEMORY

Materials Needed: Pictorial Memory Card, Stopwatch

Time Started: ________

● I AM GOING TO SHOW YOU A PICTURE OF SOME THINGS. THEN I WILL TAKE IT AWAY AND SEE HOW MANY OF THE THINGS YOU CAN REMEMBER.

● LOOK CAREFULLY. (Turn over card. Start stopwatch). WE HAVE A: (point to each) CAT, BOOK, SPOON, BED, SCISSORS, AND TREE.

Allow a few more seconds for inspection for a total of 10 seconds including naming time. Remove card from sight. Reset the stopwatch.

● NOW TELL ME WHAT YOU SAW.

Start the stopwatch. Allow 90 seconds total time for the child to respond.

If the child does not respond within 10 seconds, repeat once by saying:
● I'LL BET YOU CAN DO IT. TELL ME WHAT YOU SAW.

If the child names only 1 or 2 objects to start, wait 10 seconds then use the clarification:
● AND WHAT ELSE?

Or if the child names 3 or 4 objects and stops, wait 10 seconds then use the clarification.
● TRY TO TELL ME SOME MORE OF THEM.

Only 1 repeat and 1 of the probes may be used.

The test may be stopped before the 90 seconds have elapsed if it seems apparent that the child is through responding. (Wait at least 10 seconds after the last response.)
Score "Yes" if child names or describes object correctly. "Thing you cut with" is correct for scissors, but animal is wrong for cat. Circle No for all unmentioned items (unless DK-R-NR is circled for entire test). Ignore any responses of items not pictured on card.

	Yes	No	
cat (kitten)	1	2	DK-R-NR 999999
book	1	2	
spoon	1	2	
bed	1	2	
scissors	1	2	
tree	1	2	

DRAW-A-CHILD

Material Needed: Child's pencil

Time Started: ______________

Place blank page in front of child with directions facing you. If child is a girl, ask her to draw a girl; if child is a boy, ask him to draw a boy.

● LET'S SEE YOU DRAW A BOY (GIRL) ON THIS PAGE (point). DRAW THE BEST PICTURE YOU CAN. BE SURE TO MAKE ALL OF HIM (HER). (Give child pencil).

If the child doesn't respond or wants to draw something else, encourage once by saying:

● I'M SURE YOU CAN MAKE A PICTURE OF A BOY (GIRL). TRY TO MAKE IT RIGHT HERE (point).

If the child asks questions about how to make it, encourage once by saying:

● YOU DECIDE. JUST MAKE THE BEST PICTURE OF A BOY (GIRL) THAT YOU CAN.

The child may scratch out parts of his picture in the process of drawing but try to discourage child from starting over completely. If child insists on starting over, after the test make sure to indicate which drawing is to be scored. Do not let child use your eraser.

If the child has not finished after 5 minutes, say:

● TRY TO FINISH THE BOY (GIRL) NOW.

When the child stops drawing:

● IS IT ALL DONE? (When it is done, praise the child. Mark the top of the drawing. Label body parts only if child volunteers information).

DK-R-NR

99

Mark "Session Stopped"
When child leaves.

Time Stopped: ______________

TESTING CONDITIONS

Circle appropriate statements

1. Environmental Conditions

    1. No problems --- go to Administration.
    2. Problems with testing area. Describe________________________________
    3. Child disrupted during testing. Describe________________________________

2. Administration

    1. No problems --- go to Materials.
    2. Test administrator procedural errors (that may have affected outcome of item). Describe________________________________
    3. Tests given out of sequence. Describe________________________________

3. Materials

    1. No problems --- go to Child Performance.
    2. Problems with test materials. Describe________________________________

4. Child Performance

    1. No problems --- go to next page.
    2. Child had difficulty speaking or understanding English.
    3. Child was non-verbal.
    4. Child inattentive, restless, difficult to control. Describe________________________________
    5. Child was uncooperative, refused to respond. Describe________________________________
    6. Child had difficulty due to physical condition. Describe________________________________
    7. Special child related problems. Describe________________________________

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CHILD RATINGS

Circle appropriate statements

A. Attentiveness

1. Attentive, involved, responsive.
2. Somewhat inattentive and uninvolved.
3. Easily distracted, must be urged to pay attention.

B. Emotionality

1. Actively enjoys task, enthusiastic.
2. Matter of fact/neutral.
3. Appears distressed, or expresses dislike.

C. Persistence

1. Very persistent, difficult items lead to redoubled effort.
2. Some persistence, doesn't give up without trying.
3. Little persistence, gives up quickly.

D. Response Speed

1. Responds quickly to instructions, no hesitation.
2. Some deliberation, but response generally not slow.
3. Often slow to respond.

E. Talkativeness

1. Very talkative (e.g., provides many elaborations).
2. Average amount of verbal expression.
3. Not talkative, gives minimal verbal response.

F. Speech Comprehensibility

1. Child's speech not at all difficult to understand.
2. Child's speech somewhat difficult to understand.
3. Child's speech extremely difficult to understand.
4. Child was non-verbal.

G. Initial Reaction

1. Child quickly adapted to test situation.
2. Child was somewhat hesitant in the beginning.
3. Child was generally resistive and uncomfortable.

H. Tester Reaction

1. Enjoyed testing this particular child a great deal.
2. Found testing this particular child somewhat enjoyable.
3. Found little enjoyment in testing this particular child.

Put any general comments on next page.

The following subtests in this battery were adapted from the McCarthy Scales of Children's Abilities with permission from the Psychological Association: Block Building, Verbal Fluency, Pictorial Memory, Conceptual Grouping, Verbal Memory, and Draw A Child. Reading Readiness, Number Readiness, and Basic Information were adapted from the Basic School Skills Inventory with permission of Donald Hammill of Pro-Ed. The Preschool Interpersonal Problem-Solving Task was adapted with permission from Myrna B. Shure and George Spivak of the Hahnemann Medical College and Hospital of Philadelphia.

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